

# American Forests *and* Forest Life



February, 1927

# The American Forestry Association

Washington, D. C.

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## WHAT THE ASSOCIATION IS WORKING FOR

**A**DEQUATE FOREST FIRE PROTECTION by federal, state, and other agencies, individually and in cooperation; the REFORESTATION OF DENUDED LANDS, chiefly valuable for timber production or the protection of stream-flow; more extensive PLANTING OF TREES by individuals, companies, municipalities, states and the federal government; the ELIMINATION OF WASTE in the manufacture and consumption of lumber and forest products; the advancement of SOUND REMEDIAL FOREST LEGISLATION.

The ESTABLISHMENT OF NATIONAL AND STATE FORESTS where local and national interests show them to be desirable; the CONSERVATIVE MANAGEMENT OF PUBLIC AND PRIVATE FORESTS so that they may best serve the permanent needs of our citizens; the development of COMMUNITY FORESTS.

FOREST RECREATION as a growing need in the social development of the nation; the PROTECTION OF FISH AND GAME and other forms of wild life, under sound game laws; the ESTABLISHMENT OF FEDERAL AND STATE GAME PRESERVES and public shooting grounds; STATE AND NATIONAL PARKS and monuments where needed, to protect and perpetuate forest areas and objects of outstanding value; the conservation of America's WILD FLORA and FAUNA.

The EDUCATION OF THE PUBLIC, especially school children, in respect to our forests and our forest needs; a more aggressive policy of RESEARCH AND EDUCATIONAL EXTENSION in the science of forest production, management, and utilization, by the nation, individual states, and agricultural colleges; reforms in present methods of FOREST TAXATION, to the end that timber may be fairly taxed and the growing of timber crops increased.

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Member A. B. C.

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# AMERICAN FORESTS AND FOREST LIFE

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### OUR SPECIAL MARCH NUMBER

Planting time is just around the corner! In the March issue, Arthur Carhart shows you how to get the best results from your planting. Charles Byers paints an effective picture of trees in the garden background. Furman Mulford tells of street and roadside trees, and there is a story on wild-wood gardens, too.

But it's not *all* planting. William T. Hornaday has a delightful article telling what wild animals think of captivity. And there are to be articles on forestry, forest people, and wild life.

*Don't Miss It!*



WINTER AMONG THE HEAVY ENGELMANN SPRUCE FORESTS OF BRITISH COLUMBIA



# AMERICAN FORESTS

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## Progress in British Columbia

*Forestry Comes to Stay in the Heavy Timber of Western Canada*

By GEORGE P. MELROSE

**I**N April, 1914, appeared an article in AMERICAN FORESTRY by the late Overton W. Price bearing the title you see above. At that time the Forest Service of British Columbia was in its infancy with its life ahead of it and was facing all the problems of a young and growing organization.

Among other things, Mr. Price said, "This new forest branch is a distinctly vigorous infant. The toys with which it is playing usefully and happily are the forests of British Columbia. That makes quite an extensive puzzle picture, for British Columbia's forests cover one hundred and fifty million acres. This infant organization spent last year about \$350,000 and took in from rentals . . . royalties . . . and from miscellaneous sources, about \$3,000,000, or a revenue of \$6.93 per capita for the entire population of the province.

"Nor is this somewhat precocious youngster interested merely in present returns. It also goes in quite extensively for forest fire protection and last year held, with a

force of 320 men, the total forest damage in the entire province down to \$18,354 which, to put it mildly, is distinctly creditable to those 320 men."

After reviewing the principles of the "Royalty Act"

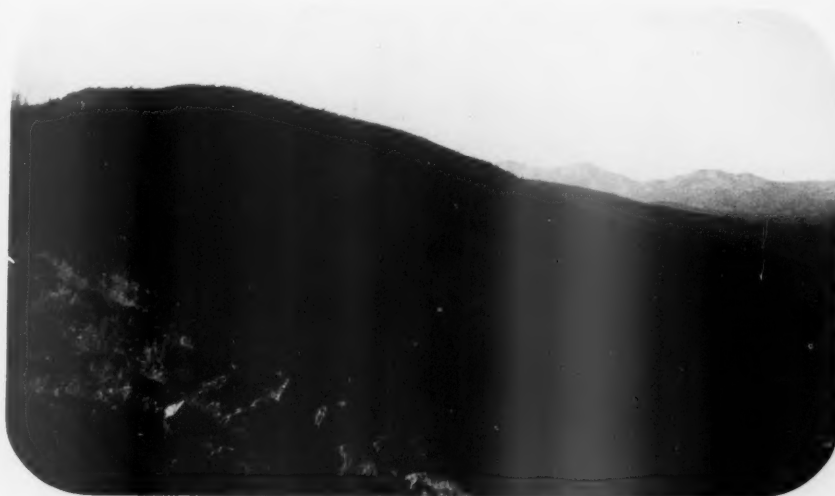
which provides the basis of profit sharing between the Government and the industry he states that "as a precedent it means to British Columbia true conservation . . . It is precisely one of the great conservation principles for which Gifford Pinchot has been fighting . . . The application of that principle to the other vast resources of British Columbia . . . will make it more than any other government of which I know the epitome of conservation principles . . . .

"I do not mean, of course, to imply that the situation is absolutely roseate. Conservation confronts difficulties in British Columbia, as elsewhere. But there is in that province an admirable combination of opportunity—for

British Columbia owns nearly all the natural resources and the special interests do not—and of patriotic, far-sighted men. Such a combination is sure to get great results."

That article was written over twelve years ago when the British Columbia Forest Branch had been in existence only two years. Al-

ready much had happened and the ground work had been laid for the progress that has taken place since. At this time, one-eighth of a century since that first review was made, it seems appropriate to sum up what measure of



**TIMBERED MOUNTAIN SIDES IN BRITISH COLUMBIA**

Recognition of the principles of conservative forest management by setting aside a percentage of forest receipts for development and protection work, marks the greatest recent step forward in forestry in British Columbia.

success in forestry has been attained in Canada's Western province and how far along the road to Mr. Price's "great results" the forest branch has traveled.

Chapin once said, "The individual and the race are always moving and as we drift into new latitudes new lights open in the heavens more immediately over us." As it is with the race and the individual so it is with the organizations within the race. Forestry being one of the youngest of professions, and actively connected with one of the greatest industries finds itself moving rapidly from one latitude to another with the result that new lights, new problems and fields of inquiry, as well as new solutions of old problems, show themselves in the heavens. Hardly started on the trail that must be blazed to the end before forestry in British Columbia is on a full operating basis, Canada's Western Province has yet made many notable strides, and placed many a conspicuous blaze along the first stages of the route.

The first problems facing the Forest Branch were naturally administrative, for at the very commencement of its existence it took over the full administration of a business amounting to nearly \$3,000,000 of revenue and organized a protective service covering one hundred and fifty million acres. Although British Columbia, to the casual eye, had the proverbial "inexhaustible timber resources," the foresters realized that they would sooner or later be faced with the necessity to provide for the future from new growth. This naturally led to the study of the problems of reproduction and growth, and development along investigative lines has become an active part of the Branch's work. Administration, protection and investigation now go hand in hand along the trail blazing their way as they go and leaving behind many obstacles surmounted. The trail

ahead has thickets to be traversed and ranges to be crossed, but the end is known, if not in sight. That end is the placing of every acre of forest land in the province

under management for sustained yield of the products for which it is best suited.

In British Columbia the bulk of the forest land is held by the people. Timber on Crown lands is disposed of only by sale under contract "license." These contracts call for cutting according to the dictates of silviculture and best protection practice. Upon removal of the timber and abandonment of the license the land again comes under the entire control of the government. The timber itself is paid for on a stumpage basis as it is scaled and the lessee, or holder of the contract, is required to deposit a security that he will carry out the word and intent of the document. During the year 1925, there were 613 sales of timber made in the province, involving a stand of 280,000 M. B. M. and an estimated revenue of \$795,000. This alone shows a great increase in business over the year 1914 in which Mr. Price wrote. In that year there were only 71 sales made for a total stand of 280,000 M. B. M. and an estimated revenue of \$350,000. This supervision of logging operations through field rangers, district foresters and head office where final records are kept, and the resulting action taken on the reports comprises the check-up on the cuttings and is followed closely. The increased efficiency of the work is the main line of progress in this branch of the service, and, the better disposal of debris and the closer cutting to the contract conditions shows big results along the road to better forestry. Revenues in 1914 were \$2,343,-

000 and in 1925 \$3,891,000. Expenditure is closely allied to revenue. Eventually expenditure must be still more closely tied to what comes in. In other words the ratio between the money received from the forests and that spent



SITKA SPRUCE

Primarily a timber country, forestry in British Columbia is recognized as a business dealing in long term investments, for time is the great factor in the production of such a crop.



THE FOREST RANGER ON PATROL

This was in the dear old pre-Ford days of 1913, but now—

upon them, in order to produce the revenue in perpetuity, must be fairly constant. At present this coordination cannot be even closely approximated because of the great areas of unmanaged forest lands and the rough state of forestry. This is the case not only in British Columbia but in North America as a whole. However, a notable approach has been made. Administrative expenditures have increased from \$254,000 in the fiscal year 1914-1915 to the sum of \$492,000 in 1924-1925. The most significant part of the expenditure, however, is the inclusion since 1914 of various items that point the way toward better forestry. In the year just past the following activities were provided for in the votes of the legislature;—lumber trade extension, insect control, reconnaissance, growth studies, and cruising. These did not appear at all in 1914. This is not to say that no reconnaissance or investigative work was carried on before last year, because at various times a great deal of such work has been done by the administrative staff. But its definite recognition by legislative appropriation places it on the proper basis to get results. This is a big step along the trail and marks a

definite blaze that cannot be erased—that will remain to mark the way the Service has passed.

The greatest step taken recently by the Legislature is the recognition of the principles of conservative forest management, by setting aside a percentage of forest receipts for the development and protection of Forest Reserves. British Columbia, with the rest of the West has felt the rising tide of prosperity derived from a greatly expanding market for her lumber products. Production has had its ups and downs but indications point to the fact that from now on a steady demand will be the order of the day. From a cut of 967,000 M. B. Ft. in 1914 to a cut of 2,611,000,000 board feet in 1925, and from an off-shore business of 38 million board feet to one of 577,000,000 board feet last year the increases give some indication of the trend of the lumber business. The significance of these figures to the forest branch is in the greatly increased business that has to be handled, (for every piece of timber cut in the province has an interest for the government in some form), and in the necessity of taking careful thought for the future.

That the future is getting its share of thought is fully evident. Protection of the forests from fires, insects and fungi, is a cardinal principle that must be recognized and followed before the next steps of silviculture can be taken, and in British Columbia they have received full attention. The fire suppression organization is equipped with the most modern and efficient mechanical equipment



IN THE TIMBERED STRETCHES OF BRITISH COLUMBIA

The modern forest ranger travels by motor through the domain he guards.





**ANCHORED FOR THE NIGHT IN A SHELTERED COVE**

This is one of the fleet of 43 launches—the pride of the British Columbia Forest Service—which take a leading part in the forest fire protection program.

and is backed by legislation and educational activities that reach every possible agency either for or against protection. Compare 1914 with the present. In the former year the only mechanical equipment possessed by the Branch consisted of about 25 launches. Rangers travelled by horse or on foot where they did not have the use of canoes or launches. The ax, mattock, and shovel were the only means of fighting fires, and communication was slow because of the lack of telephones. Today there are in the service of the Province for forest protection and administration 43 launches, 74 motor cars, 15 railway speeders, 85 gasoline fire pumps, 7 wireless telephone sets on launches, 3 shore wireless stations controlling communication between all points on the coast and launches so equipped. In addition many hand pumps have been bought, hundreds of miles of trail built, cabins, lookout stations, telephone lines, tool caches and tools provided, while tourist camps have been established at strategic points.

Silvicultural investigations have been on an active footing and research officers assigned to the work for the past four years. Before that various lines of investigative work were taken up from time to time by the administrative staff, but naturally they could not spare the time properly to handle the various problems. Depletion of the staff by the World War held back the initiation of re-

search, the pressing administrative problems taking all the available men. But the situation is now easier and the Branch has taken the first step in establishing forest experiment stations. One has been started in the coast region and another on the line of the Canadian National Railways in the Northern spruce types. Research staffs are being developed and it is hoped that within very few years there will be such stations in the four important forest regions of the province.

British Columbia is primarily a timber country. Of the total land surface of 353,511 square miles only 6% or 20,000 square miles, is fit for agriculture, while 40% or about 144,000

square miles is land that will produce forests. It seems then only the dictate of prudence to set aside for forest production all the land that cannot be used for other purposes. Forestry is a business dealing in long term investments and the source of production must be undisturbed for long periods of time. To insure that young growth will mature and that forests may be grown in perpetuity under proper conditions the Province is following a policy of placing under Provincial Forests all the absolute forest land. As fast as the necessary examinations can be made and the forests described they are being



**A PULP AND PAPER MILL IN BRITISH COLUMBIA**

On a perpetual supply of forest products the future welfare of this thriving industry is dependent.



reserved and placed under administration for their primary purpose. Already 6,385 square miles have been reserved, while the more intensive work of preparing stand maps, working plans and improvement plans is being pursued every year.

Many extensive areas of mature timber are found throughout British Columbia that, under proper management, could support large forest industries in perpetuity. Wherever these are found they are being cruised so that all data concerning them as operating units will be available. As soon as industrial demand calls for this timber it will be ready for operation under proper management and control. The areas will then be turned from idle wealth to productive assets and will support many large and prosperous communities. A definite program is being followed that will, in time, secure data on all the available timber in the province and enable management plans to be perfected.

The grazing of cattle, sheep and horses is a large and thriving industry in British Columbia. The ranges are scattered throughout the province, partly owned by the stockmen and partly by the Crown. In many localities the unrestricted use of the open range by many stockmen was having the usual effect of depleting the forage crop and the proper expansion of the ranches was retarded through

lack of permanent tenure of grazing rights on the range.

In 1918 the Grazing office was organized within the Forest Branch which took over the management of the Crown ranges. Under the administration of this office the use of the ranges is being properly regulated, through cooperation with organized livestock associations. Grazing permits are issued which become, through use by the ranch concerned, a priority claim for range, while range improvements and grazing plans are increasing their carrying capacity. The grazing administration is handled in the field through district foresters and rangers.

Education in forestry has not been neglected. There is a flourishing forest school at the University of British Columbia. The students are studying in the heart of the greatest timber district in the Province, within sight of the mighty fir forests that have made the coast famous and within hearing of the great mills that turn the forests into the world's most useful products. During the summer vacations most of the students carry on their studies in the woods, entering the lumber camps and the employ of the forest branch. The graduates are absorbed in the same ways.

Forestry education is  
(Continued on page 110)



A MINUTE MAN ON THE FIRE LINE IN B. C.

This forest ranger is starting off by hand speeder, carrying gasoline pump and hose equipment to the fire line.



TAKING A GOOD LOOK FROM THE AIR AT THE BEGINNINGS OF A FIRE

The line of demarcation between the logged-over area and the dark, uncut timber is clearly defined.



Courtesy U. S. National Museum

WHEN SAVAGES CARRIED FIRE FROM ONE CAMP TO ANOTHER

## *How Fires Were Made in Ye Olden Days*

By HARRY VAN DEMARK

LOOKING around upon the present evidences of civilization, the imagination is sorely taxed to picture a time when ready means of striking a light was not available. Yet it is certain that such a time must have been—far back in the dim ages when man roamed the wilds and dwelt in holes and caves of the earth, scarcely more advanced in his domestic arrangements than the beasts of the field. In what manner the value of fire as a servant first dawned upon the mind of man must ever remain mysterious, but at all times there must have been fires and great conflagrations kindled by natural means and entirely without the aid of man. Thus the effect of the lightning stroke; of friction caused by falling rocks or the chafing of limbs and tree trunks in the dense forests; of the volcanic overflow of smouldering furnaces within the earth,—all these would from time to time display the properties of fire before the wondering eyes of primitive mankind.

Probably man first feared fire, then began to worship it as a god, terrible in its manifestations and omnipotent in its power to destroy. Then, his



Courtesy U. S. National Museum

CALIFORNIA INDIAN MAKING FIRE BY FRICTION

He is using the fire drill—the heat generated by friction causes ignition of dust ground off. This is probably the earliest method of making fire.

fear departing he used it for cooking and for warmth. Notice that at first he did not make fire; he took it from Nature's hand, just as he gathered fruit from the forest boughs.

There is direct evidence of this in the traditional history of many races. For example, the T'lisngit family of Indians in Southwestern Alaska say that the raven gave them fire, and have an elaborate folklore descriptive of the bird and its flight through inky darkness, bearing the divine spark in a box. The fire was religiously preserved and fed, and members of the tribe took it for their domestic hearths. These and similar fables of the preservation of fire in a box, and its being borne from tribe to tribe, or family to family, are reminiscent of the unquestionable fact that man knew and employed fire long before he had discovered the means of making it for himself.

Probably the first attempts of man as a fire-maker were confined to the friction of sticks. There are just three ways in which one piece of wood may be rubbed upon another; namely, by moving with the grain, or "plowing;" by moving across the

grain or "sawing;" and by twirling a pointed stick within a wooden socket, or "drilling." All these methods were used by early man.

Neither the first nor the second method, however, were brought to a high state of perfection—or, to be more precise, they both reached perfection in a rudimentary form.

The fire-plow, which was widely used among the Indo-Pacific races, consists of two parts: First, a stout piece of thoroughly dried wood, perhaps three feet long and two inches in diameter, which forms the hearth or stationary part; second, a smaller stick of the same kind of wood about a foot long, cut wedge-shape at its lower end, the edge forming a very obtuse angle. This constitutes the working part, or plow. It was rubbed violently backward and forward on the stationary piece, cutting a groove running with the grain for a distance of four inches. Minute shavings were thus detached, and in the hands of a skilful manipulator these were soon heated above the point of ignition.

Fire-making by sawing was a Malay device, and has never, perhaps, been successfully employed except in countries where bamboo flourishes since bamboo is the only really suitable wood. Two pieces are taken, one with a sharp edge, the other with a notch cut in it, nearly but not quite severing the substance. After sawing for a time the floor of the notch is completely pierced, and the heated particles fall below and ignite.

But the most important method of primitive fire-making is drilling. In its most simple form a stick of dry wood is twirled vertically between the hands upon a

very dry and partially decayed lower platform. It is extremely difficult to obtain fire in this way, as modern experimenters may prove for themselves. Yet, there is a certain knack about the operation, and when this has been mastered, smouldering wood-dust may be created with comparatively little labor.

It is clear, however, that the fire-drill could be made more effective and rapid in action in several ways. One such way calls for the co-operation of two individuals, one to support the the vertical spindle by means of a socketed rod, while the other wraps a cord about the spindle and pulls it backward and forward as rapidly as possible.

A further complication of the fire-drill was the application of the bow-string, similar to the drilling appliance used by jewelers. The socketed rest for the vertical shaft was then held by one hand, and the thong alternately pulled and slackened with the other. Thus a saving of labor was attained.

As a means of striking a light the forerunners of the comparatively modern flint and steel were flint and pyrites, or two pieces of pyrites, the mineral from which sulphuric acid is made. These were struck together and the sparks generated

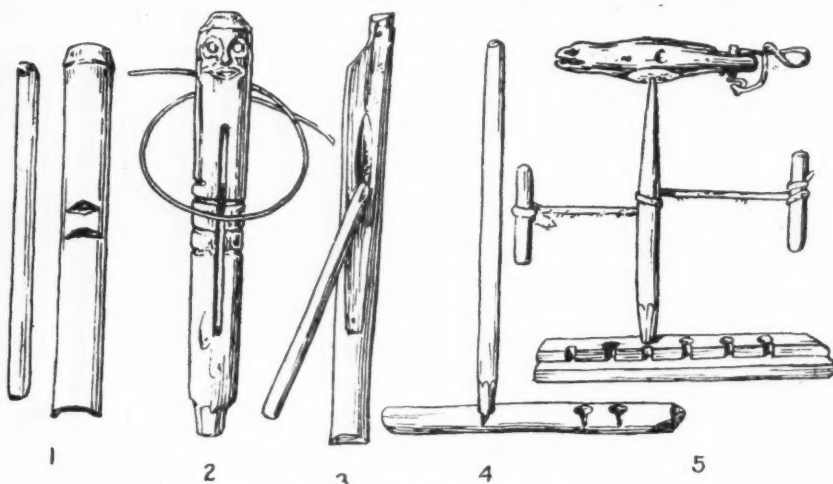
were caught among a little dry moss. The Eskimo from Smith Sound to Bering Strait used this method. A very complete strike-a-light set, including flint, pyrites, tinder in dainty little bags, and a leather pad to guard the fingers, has been found quite recently in the vicinity of Cape Bathurst.

Modern forms of flint and steel are well known to most people from examples preserved in museums.



AN ORNATE TIBETAN UTILITY BELT

Made of red leather and finely ornamented with silver and coral, the belt carries a knife; tinder and flint pouch and a needle case. The scabbard of the knife is of iron and gold and the handle is set with coral and turquois. The pouch is studded with silver, with a large turquoise at the end of the thong, while the needle case is also of iron and gold, decorated with coral and turquoise. This is from the W. W. Rockhill collection, used through the courtesy of the U. S. National Museum.



MOST PRIMITIVE OF FIRE TOOLS

1—A fire saw. A strip of bamboo is drawn across a section of bamboo,—used by the Dyaks of Borneo and other Malays; 2—Fire thong. A rattan thong is drawn over a grooved piece of wood,—also used by the Dyaks; 3—Polynesian fire plow. A blunt stick is worked along a groove in a lower stick; 4—Fire drill. A slender rod is twirled between the hands upon a lower stick having a cavity with slot,—used by the Indians of the United States; 5—Another type of fire drill, used by the Eskimos of Alaska. The rod is held in a socket and gyrated by means of a cord.

There is a very old type of wooden box, perhaps the earliest strike-a-light set made by civilized mankind. With this are certain small angular pieces of stout paper, the tips of which are dipped in sulphur. These are the most primitive kind of match known. They are used for generating a flame by application to the smouldering tinder. Genuine specimens of these matches are now extremely rare, though "faked" ones have frequently been offered for sale by dishonest dealers in curios.

Another and more compact type of tinder-box is made of metal. In the bottom is an old burned rag, used as tinder, and upon this the flint and steel reposed when the box was not in use. Still more interesting is the ingenious strike-a-light made in the form of a pistol. The flint is worked by the trigger, and strikes upon an upright plate of steel. The contact throws sparks through an opening upon the tinder, contained in a narrow box which takes the place of what would be the barrel of a pistol.

This contrivance is a relic of the old stage coach days. By means of it a light could be struck in a high wind. The matches which were then used were strips of thin pine wood dipped in sulphur.

One other tinder-box may be mentioned, namely the *cha-*

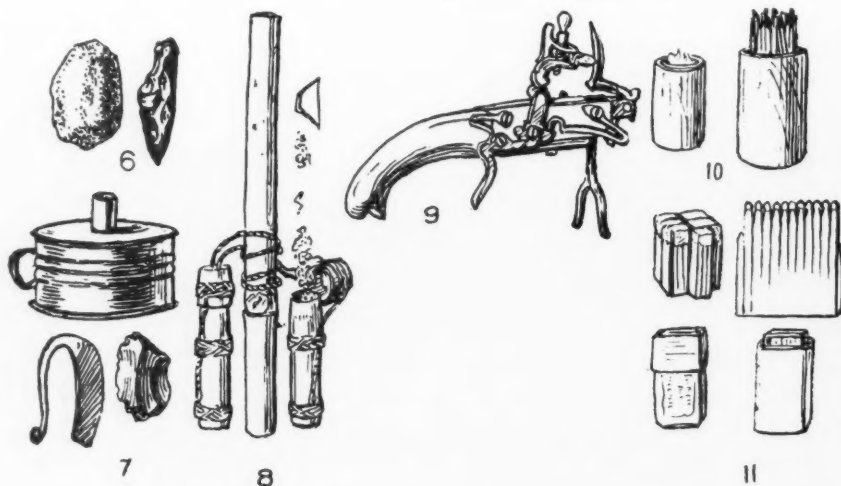
*mak*,—still in use among some of the Himalayan tribes. It is a little leathern pouch containing flint and tinder, and the steel is a strip of metal riveted along one side of the pouch. It is of small size, suitable to be carried about the person.

Next in order we have the match as it has been developed by civilized man. Phosphorus was discovered by Brandt in the seventeenth century, and was used as a means of obtaining fire shortly afterward. Its costliness, together with the danger attending its use, militated against its popularity.

But in the year 1805 the Parisian Chancel introduced the so-called oxymuriate match. It was a slip of wood tipped with a mixture of chlorate of potash, sugar and gum. To ignite the match was thrust into a bottle containing a piece of asbestos saturated with sulphuric acid—an awkward arrangement especially in the dark.

Then came the "Promethean" matches whose career was short-lived. They were a kind of paper, rolled in the form of a pencil and dipped in a mixture of sugar and chlorate of potash. Rolled within the paper was a tiny glass bulb filled with sulphuric acid. To strike these matches the tip was compressed between the teeth, or

(Continued on page 110)



INSTRUMENTS USED IN THE DEVELOPMENT OF FIRE MAKING

6—Strike-a-light. Flint and iron pyrites struck together as the ordinary flint and steel,—used by the Eskimos of Alaska; 7—Flint and steel and box for holding flint, steel and tinder, from England; 8—Strike-a-light. Bamboo tube and striker of pottery used as flint and steel, with two boxes for tinder; 9—English tinder pistol. The gunlock is adapted for throwing sparks into tinder; 10—Match light box, used in Vienna in 1809. A bottle of sulphuric acid, into which splints tipped with chlorate of potash were dipped; 11—First form of modern match box, holding phosphorous matches.



# The Army of Silent Tree-Killers

*Insect Legions that Take Yearly Tribute of Our Forest Wealth*

W. J. CHAMBERLIN, *Forest Entomologist*

**T**HE timber resources of the United States are receiving a great deal of attention at the present time. A vast army of men toil throughout the long summer months to prevent and suppress forest fires. Timber and lumber men are eliminating as rapidly as feasible all possible waste in logging and lumbering operations and closer utilization is being practiced among manufacturers. A beginning is also being made in reforestation by Federal and State officials as well as by the more progressive private owners.

Certainly fire management and reforestation are of vital importance to all who are interested in our natural forest resources. Yet there is another living destructive

force working in our timber which has as yet failed to receive the attention that its sinister activities deserve. This enemy is the great army of tiny insects which are ever busy gnawing into the very vitals of our timber resources.

## DO YOU KNOW:

That the Spruce Bud-worm has killed over 50 million dollars worth of timber during the last decade?

That the Western Pine Beetle kills more merchantable timber in one year than fire destroys in ten years?

You will find many little known and startling facts in this series of three articles on Forest Insects by W. J. Chamberlin, Forest Entomologist of the Oregon Agricultural College.

Of what avail is it if we succeed in keeping fire out of our timber, or if we reforest our denuded lands and later allow insects to enter and destroy the fruits of our labors?

Vast organizations for the prevention and suppression of forest fires have been well nigh perfected. That they are

justified even at great expense is no longer questioned. Very little money has been expended upon forest insect control, yet the loss incident to fire is only part of that



*Photograph by J. E. Patterson*

THIS IS A DEAD PINE FOREST, THE RESULT OF A BARK BEETLE INFESTATION. THE GREEN TIMBER IS FIR (*Abies magnifica*) AND NOT SUBJECT TO ATTACK BY THE SAME SPECIES WHICH KILLED THE PINE

which is caused by insect depredation.

Estimates based upon careful study by government officials gives the actual money loss to timber from fire in the United States as averaging close to fifteen millions of dollars each year for the past ten years. It is much more difficult to get an accurate estimate of the insect loss, but some authorities assert that it lies between one hundred and one hundred and fifty million dollars a year.

Thus it may be seen that the loss caused by insects is from seven to ten times as great as that caused by fire. The loss is not only the money represented by the actual value of the stumpage. Were this vast amount of timber available for manufacturing it would later represent many times its stumpage value in payrolls since six to ten dollars is paid in cash into the community for each thousand feet of lumber manufactured.

If the timber destroyed by insects in one year alone were manufactured into lumber there would be enough material to build substantial homes for 250,000 American families.

We may wonder why this immense forest loss year after year has not attracted more attention. Forest fires send out their warning smoke, and their presence is heralded far and wide. They are spectacular and require immediate attention; they occasionally take toll of human life and often of property other than the trees. All this forms what the editors term news, and the press is filled with the details of forest fires throughout the summer. On the other hand the insects work in most cases quietly under the bark, in the wood or high up in the foliage of the trees and are seldom seen, except by the entomologist who seeks them out.

Most insect depredations are not localized or centralized as is fire. A survey of the pine forests of the Central and Southern Sierras in California in 1917 showed that twenty-five million feet of merchantable timber had been killed in one year by insects. Had this vast amount of damage been done in one or two centralized areas it doubtless would have attracted much attention and would have received some publicity,

but scattered over hundreds of square miles of territory it was overlooked by all but the specialists.

Thus hundreds of thousands of trees, scattered far and wide throughout the forested regions of the country fall each year from the attack of insects and the general public knows little or nothing of it.

It is only when some particularly pernicious species, multiplying into great numbers, infests a large percentage of the trees over a given area that general attention is attracted to their work.

These major or epidemic infestations are becoming more and more frequent of late years. In Southern Oregon and Northern California where exists the finest yellow pine stand in the West, there is an infestation over an area of a million and a quarter acres. Vast areas of lodge pole pine and lesser amounts of white and yellow pine have been killed by bark beetles in Idaho and Montana and the end is not yet. The widespread infestation of yellow pine in Northern Arizona offers another example. Many lesser areas in the Rocky Mountain and Pacific Coast States are being ravaged by these tiny beetles.



*United States Bureau of Entomology*

**LODGE POLE PINE KILLED BY THE MOUNTAIN PINE BARK BEETLE, IN YOSEMITE VALLEY, CALIFORNIA**

The wholesale destruction of spruce and balsam in the Northeastern United States and Eastern Canada is well known. The losses there were tremendous, from 50 to 90 per cent of the spruce and balsam over almost the whole region succumbed. It is also a well known fact that almost the entire merchantable stand of larch in the same region has been killed by the larch saw fly. It is, however, not so well known that these two insects are moving west and that in many parts of the Northwest and in the Rocky Mountain states their ravages are becoming apparent.

A small moth, similar in appearance to the well known clothes moth, has killed a great body of lodge pole pine in the Yosemite Valley in California and other defoliating insects have become so serious in Yellowstone Park that actual spraying of parts of the forest was carried on during the summer of 1924 and 1925. A defoliating caterpillar, known as the hemlock looper, destroyed a million dollars worth of timber



A YELLOW PINE DEFOLIATED BY THE PANDORA MOTH. SUCH TREES WILL OFTEN RECOVER, AS THE DESTRUCTIVE CATERPILLARS OF THIS MOTH APPEAR ONLY IN ALTERNATE YEARS

along the coast of Washington and Oregon in one year. The pine butterfly has appeared at irregular intervals in various parts of the Northwest for the past thirty years. With each appearance the caterpillars have stripped large areas of coniferous trees of their needles and either killed the timber outright or so weakened the tree that it was an easy prey for bark beetles.

Many other infestations of greater or less extent might be mentioned, but these are enough to illustrate

the point that if present forests are to be fully protected and if future forests are to be grown so that our dreams of conservation may be realized, much more attention must be paid to the lowly little insects,



ALASKA CEDAR KILLED BY ROUND-HEADED BORERS. THE GALLERIES RUNNING THROUGH THE CAMBIUM ENGRAVE BOTH THE BARK AND WOOD, EFFECTIVELY GIRDLING THE TREE

which, though seldom seen, carry on constantly, and are in reality the greatest enemies of our forests.

(The life histories and destructive habits of some of these forest foes will be the subject of a succeeding article.—EDITOR.)

Copies of the Index of AMERICAN FORESTS AND FOREST LIFE for the year 1926, Vol. 32, are now available and may be had by application to the Headquarters of the Association, The Lenox Building, 1523 L Street, Northwest, Washington, D. C.



# Forest Ownership

## *Chief Forester Greeley in His Annual Report Urges the Necessity of Stabilizing Land Titles*

**C**ONTINUAL shifts in land ownership constitute a serious obstacle to the progress of forestry, according to the annual report of Col. W. B. Greeley, Chief of the Forest Service, Department of Agriculture. State holdings, he says, vary from highly stabilized to wholly unstable while large private holdings are beginning to show an encouraging trend toward settled ownership. Those of small holders, municipalities and the Federal Government change little.

The Chief Forester believes that the area of land in public ownership should be increased by all agencies until ultimately about one-third of our total forest area is under such management. It is undesirable however in his judgment that additional federal holdings should be sought in regions where local needs can be met by state and municipal forests or by the extension of farm and industrial forestry. Colonel Greeley observes that many lumbermen are coming to see and assume the responsibility created by land ownership and to weigh carefully as business men the possibilities of forestry.

The holdings of the States of New York and Pennsylvania which now have respectively 2,000,000 and 1,000,000 acres in state parks and forests are pointed out by the report as a progressive accomplishment toward a national forestry policy.

Electrical storms and prolonged droughts made the 1926 fire season unusually severe but the report records a greater degree of public cooperation than has been evidenced in any previous year. Airplanes are said to have given a good account of themselves in emergency patrol and reconnaissance activities. Fire weather warnings issued frequently by the Weather Bureau were more efficient and helpful due to the securing of special funds for the work.

Progress in forestry under the provisions of the Clarke-McNary law which authorizes and directs Federal cooperation with the States, and which became effective in 1925, is given considerable attention in the report. This movement to link the Nation and the States in a united effort to develop timber growing on the widest possible scale, especially on private forest lands which make up 80 per cent of our total forest area, has inspired many States to greater activity. Forty-one of the 48 States and Territories of Hawaii and Porto Rico are now cooperating with the Federal Government under one or more sections of the law. Nearly \$4,000,000 was available for forest fire control work last year. Private landowners reported nearly \$1,500,000 to the Forest Service, the States \$1,800,000, and the Federal Government spent

\$660,000, excluding the amounts appropriated for fire control in the Federal forests.

The Chief Forester calls the attention of the Secretary of Agriculture to the fact that the Federal Government is not setting a good example to private owners of cutover land, in the small acreage which it annually plants to forest trees. With an area of more than 2,000,000 acres in need of planting, only 11,565 acres were planted during the past year. The outlay needed to carry on this work is not the same as an expenditure but as Colonel Greeley points out, an investment by the Federal Government.

Extension of the purchase of lands for National Forests to the Lake States, is featured by Colonel Greeley in summarizing the year's work. Under the provisions of the Clarke-McNary law the National Forest Reservation Commission has authorized the buying of 532,000 acres of forest land in Michigan and 821,000 acres in Minnesota. For the entire country 364,154 acres have been added to the National Forests in the past year. This brings the total area up to 158,759,210 acres.

Among the notable recent contributions by the research organization of the Forest Service is the preparation and presentation of volume and yield tables for commercially important species in various regions. Such tables are indispensable to accurate estimating of the volume of standing timber and to the work of predicting rate of growth. Other research accomplishments cover not only basic problems in the progress of timber growing, but cooperative work with the Bureaus of Entomology and Plant Industry in the study and control of forest insects and diseases.

During the year a start has been made on the forest taxation inquiry authorized by the Clarke-McNary act. A staff, under the leadership of Professor Fred R. Fairchild, chose the Lake States in which to begin the work, establishing headquarters at St. Paul. The investigation involves a general canvass of the sources of revenue in the more important forest counties with intensive studies of certain townships. The information secured, it is hoped, will result in the establishment of definite principles for logical forest taxation systems throughout the country.

The Forest Products Laboratory has done remarkable work as technical advisor in the formulation of American lumber standards by the wood-using industries and has continued its investigations in the fields of timber testing, wood preservation, paper manufacture, wood distillation, lumber seasoning and other lines.

Steady progress is reflected in grazing research as an adequate scientific basis for range use.





THIS BEING PHOTOGRAPHED IS SUCH A BORE!  
A litter of future prize winners from the Hercules Fox Farms.

# Foxy Livestock

By ARTHUR HAWTHORNE CARHART

**D**AY before yesterday silver fox farming was a close-guarded monopoly of Prince Edward Island.

Yesterday it was in a hectic state of wild speculation. Today it is a mixture of retrenchment, the formation of breeding strains, Mendelian law applied to fur-growing, and the horse sense of good business. Tomorrow it will probably be a well organized stock industry not greatly different from the raising of any pure-bred livestock. All this has taken place within the past thirty-five years. The industry has fairly leaped into being. Universal interest has been aroused. Everyone has at least passing interest in silver fox farming. When Tom Gill of AMERICAN FORESTS AND FOREST LIFE asked me to run down the present situation in the fox farming business and try to explain in words of one syllable how Tom, Dick and Harry can get into this remunerative business it did not take any number of hours pouring over musty tomes in forgotten corners of libraries. Information on this industry is not there. Instead, it is right in the heads of the fellows who are making fur farming their business. No better source of information can be found. So I cornered an executive of a large fox ranch and put my question squarely to him. He talked at length and frankly. Fur-

ther investigation substantiated his statements. Here in brief is what I found.

In 1883, the Adam and Eve of the fox farming business started the first strain of selected fox breeders that was to be the beginning of the big fox business of today.

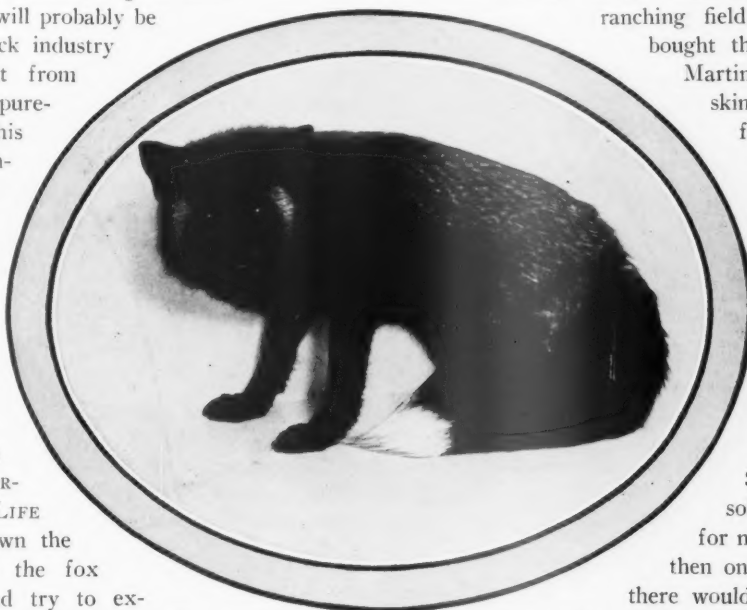
Sir Charles Dalton, famous in the fox ranching field, was the man who bought this pair from a John Martin for \$100.00. Fine skins were then selling for about \$150.00 each.

A few years later, in 1890, to be exact, Sir Charles formed a partnership with Robert Oulton and they built the first fox ranch on Cherry Island, near Prince Edward Island. By 1905 one skin sold for about \$2,000.00. It was re-

sold three months later for nearly \$3,000.00. From then on it was inevitable that

there would come a break which would plunge this infant industry into chaotic speculation,—wild buying and selling.

At first the owners on Prince Edward Island, by a gentleman's agreement, refused to let breeder stock be sold. They would sell pelts, but they would not allow live foxes to leave the island. This continued for nearly two decades, with the prices of skins climbing over the entire period. The business was a tight monopoly up until 1910, enjoyed by but six growers.



"FOXY"

A beautiful specimen bred near Prince Edward Island.

Then two pairs of foxes were sold. The price was high; \$10,000.00. The selling of breeder foxes soon started in dead earnest. The price for good stock soared. Speculation topped the peak in 1913, one price of \$25,000.00 per pair being paid. Here is the foundation of the booming, speculating, wildcat promotion that for a time dominated the fox farming field.

It is logical that such prices could not keep up. New fox pups were coming into the world as fast as the basic stock could produce them and being sold as breeders. Old Man Supply N. Demand got in his licks. The war added a few high-powered touches. The market for foxes at ten thousand a fox melted down to a right stiff reasonable price for first class breeders.

But another thing happened in this period of booming. No foxes were pelted except by the growers of select purebred stock, who refused to damage their reputation and standards by selling as breeding stock foxes of mixed strains and low, no-account parentage. But unscrupulous promoters had no reputations or standards so they sold scrub stock that is just as scrubby and ineligible for pedigree as the onriest scrub cow critter that ever grew lanky on the fattest feed of the ranges. The fact that scrubs were not pelted and removed from the breeding field is one of the big danger signs for anyone going into the fox business. A scrub fox will never grow anything but a scrub pelt. Know the parentage of any breeder fox you buy. Only first class pedigreed stock still has a steady market. It always will. Anyone who believes that he can sell scrub foxes for high prices whether they are of pedigreed stock or not, sell them just because they are dark-colored, is about due for a very rude and costly awakening.

Another way to express this situation is that from now on there is going to be an increasing market for pelts. Breeders will be taken from the best herds of foxes, while the scrubs will all get into neck pieces, or other knick-knacks of wearing apparel. They have no place in the purebred fox business. They cannot produce pelts to compete with fur from purebreds and therefore have no permanent place in the field of pelt production.

Here it is well to point out that a scrub skin will not bring more than about fifty to a hundred dollars.

Think further of the fact that the cost of building a pen, hiring help, feeding and all forms of overhead go

on just as steadily for a scrub fox as for a purebred. It costs about ten to fifty dollars to raise each fox, depending on efficiency, investment and a lot of other factors, no matter whether he is a purebred or a scrub. If the market drops to where scrub skins are worth no more than fifty dollars, then someone is not going to make much money out of scrub stock.

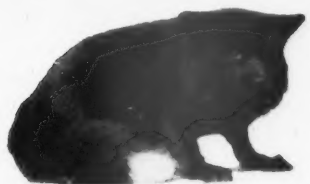
On the other side of the question is the fact that a pair of foxes of tested blood strains and certain to become breeders of good foxes, will bring on the market today about two thousand dollars. In other words,



STERLING'S ALASKA "QUICKSILVER"

A "star" in the fox farming industry of today, his pelt is valued at \$800.

the fellow who has invested in scrub stock stands to break even if he is really lucky, while the fellow who has picked pure line breeding stock, insisted on seeing the pedigree, the family tree, of each fox he is buying, stands to always sell good breeding stock to the industry at a real margin of profit. Not only is it true that the grower of good stock will make money in selling breeders but he will be able to sell pelts for three, four, five or more hundred dollars for some time to come in spite of the amount of scrub pelts that will be on the market. Dead or alive the selected pedigreed stock will be the



money-maker for the fox grower.

Now how can Tom and Richard and their buddy Harry, break into the fox raising business and make some money? One way is

to invest in a pair. There are many concerns which will keep the pair, charge you a fair or otherwise price for "stabling" the foxes for the year, handle them all the way through to a good substantial increase for a consideration. But it is well to know just what you are buying, what management is back of the ranch and all about the breeding stock they have before you drop any money into such an organization.

An example of what might happen was cited by a western grower of foxes with whom I talked. A big concern, with fine, high-powered literature and some higher-powered salesmen launched a big ranch up in north-eastern United States. They sold anything; a pair, an interest in the pair, options on unborn pups, stock in

the company. It was all the same to the salesmen. They would sell anything pertaining to fox ranching.

Money rolled in. People had vision of regal foxes with pelts selling at five or ten thousand dollars, or breeder pairs beating that figure. It was all right so long as the money kept coming in. But it slowed up a little. Then a creditors' committee tried to pull the business out of the hole. Later it got into the courts. The court found that many purchasers did not know just what they had bought. The judge ordered that not a cent more be spent on the place, not even to feed the foxes. People who had invested heavily went in and paid out further money to keep the foxes alive. With

three million dollars worth of options, stock, and interests in pairs, sold by slick salesmen, this company has about three hundred thousand dollars worth of real assets. With that handicap it will never pay out the original investment.

An official of one of the larger and more successful fox farms in the Rockies stated positively that it was unlikely the speculative money thrown into the fox business would ever come rolling home to the plungers in sufficient

quantity to pay them back this investment without interest. Certainly there would be no profit for the many people who had put their money into it.

Not all of these companies which will sell pairs and keep them for the purchaser are over capitalized speculations. It appears that there is quite a sizeable block of them that are sound as a nut. In such a company the fellow with a little money to



**FOX-FARMING IS EMERGING INTO THE FIELD OF LIVESTOCK INDUSTRY**  
A section of the ranch of the Central New York Fur Company showing a section of the fox pens and dens, and the wide roadway between. The two alert chaps shown at the top of the page are fine specimens from the "Tarnedge" Farms.

invest can expect to get returns in profits of a reasonable size. Such profit will be in proportion to what may be expected from any sound, well-managed business.

There is another point to be stressed in favor of the handling of foxes on ranches instead of trying to take care of them as a side line to general ranching, farming or commuting. Foxes take special care. Their food must be a balanced ration for foxes. Otherwise they do not grow the big body and the fine pelt that will make them of most value. Sanitation is a real problem. Food pans are sterilized each day, pens must be kept clean. And when it comes to selecting mates for the production of the best pups it takes the eye and knowledge

of an expert. Still another factor one must consider is whether he is in the climate zone in which the best pelts can be raised. For pelts grown in locations where they will not prime up will never compete with those grown in places where a good, thick fur will develop.

A map in the United States Department of Agriculture bulletin No. 1151, page five, shows areas in the United States where conditions are good for fox farming. Unfortunately for the well-known triumvirate of Tom,

But there is a field for the fellow who wishes to grow a few foxes as a side line and make a really good profit at it, almost regardless of where he may be located, provided he is north of the central part of the country or in the mountain uplands of the west or east. Stock for breeding purposes can be grown almost anywhere in the north half of the United States and sold as breeding stock.

First the grower must have a love for animals. Sec-



**A SMALL BUT SUCCESSFUL RANCH**

The man who loves animals, likes to work with them and is willing to "go through" to get recognition for his particular breeding strain, can undoubtedly make a success at fox farming. This picture was made at the Rosebank Fur Farms, near Prince Edward Island, Canada.



**THE ORIGIN OF THE "FOX-TROT"**

Richard and Harry, this indicates that fox farming must go to where fox farming can be practiced just as definitely as growers of pineapples must go to pineapple districts, if they expect to enter the field of pineapple farming.

This all seems most discouraging to the fellow who has been thinking about getting a pair of foxes this year and in about three years getting a home by the sea, a yacht, and a collection of butlers, footmen and chauffeurs.

ond, he must have the thoroughness to study every scrap of printed matter about fox farming and sift out the real information. He must then have the investment money to build a few substantial pens on a site suited for them. Such sites are thoroughly described in governmental publications and other authentic literature. He must familiarize himself with some of the pureblood family lines of the fox industry. Herd books already exist and this is just the sort of a process that any

(Continued on page 110)



# Planning for Forest Perpetuation

By EDWARD HARPER THOMAS

**A**FTER talking conservation for more than a quarter of a century the Pacific Coast States of Washington, Oregon and California, are preparing to embark upon a policy of forest perpetuation, which, it is felt, will prove a practical economic solution of the problem. Since necessarily it will be upon an unprecedented scale and will give recognition to the necessity for revising methods of taxing both growing timber and timber lands, conservationists everywhere will watch the movement with interest.

Climatic conditions on this whole coast slope are ideal for timber growing, particularly in the Douglas fir regions of Oregon and Washington. In no other part of the world will native tree species reproduce so abundantly or grow to maturity at a greater rate of production measured in terms of board feet per acre. Nowhere else

can so great dependence for productivity be placed upon Nature.

The annual rainfall is large, the winters are mild and moist, the winds are not severe and the old growths of fir, cedar, redwood, spruce and hemlock have been sowing the seeds of potential new forests for centuries. Nowhere do trees live longer or reach greater proportions. In no other parts of the world is the annual board foot per acre production as

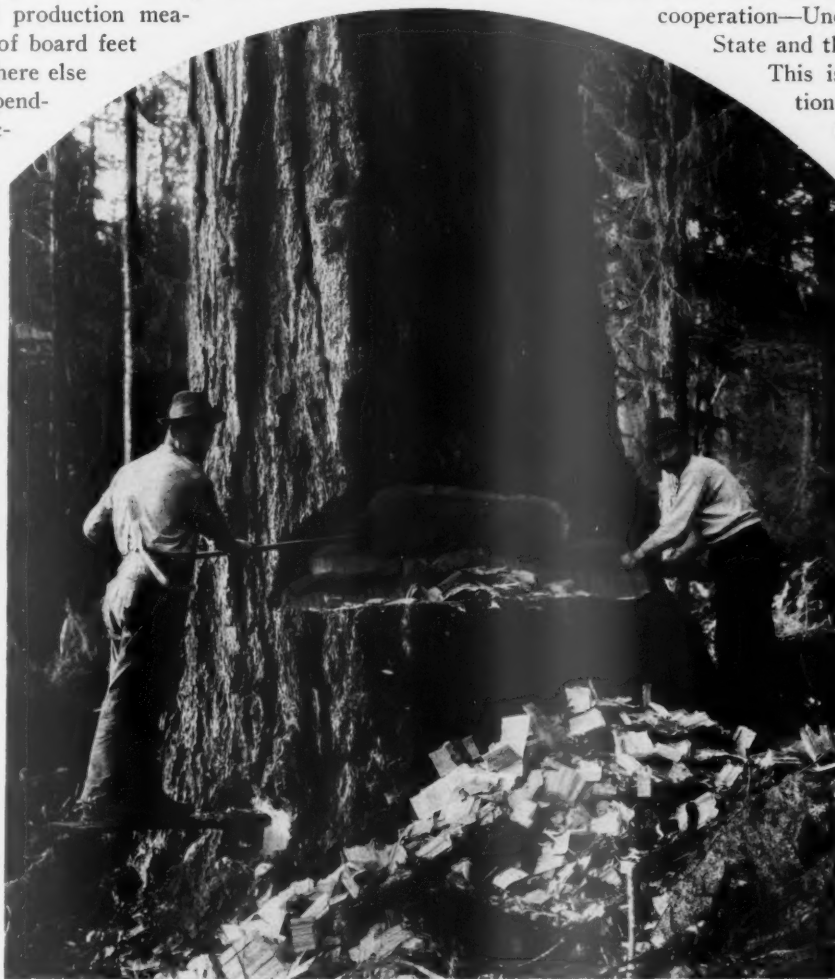
great as in the forests of these three Pacific Coast states.

Conditions in the state of Washington, the leading state in lumber production, are illustrative of the problem as it exists today. The original forest area in this state comprised about twenty and a half million acres. Of this five and a half million acres have already been cut over. Of the fifteen million acres remaining practically one-half is in Federal ownership—the National Forests—and of the other half, a million acres are state-owned. This leaves six and a half million acres in private ownership, held by private individuals and timber companies.

It can be seen at once that forest conservation in such a state is a matter of three-party cooperation—Uncle Sam, the State and the private owner.

This is also the situation in Oregon and California. But in these states

the federal government and the state as owners, have an advantage over the individual in the cost of carrying reforestation; for the private owner pays both an annual land tax and an annual standing timber tax, based on county valuations and county cruises, while state and federal lands pay no taxes whatever. And this tax is so high in the aggregate



A NEW ERA OF SERVICE BEGINS

Having served the use of beauty and inspiration in the woods, this great tree starts now its term of economic service to man. The first step lies in the falling—a deep undercut is made to prevent splitting and wastage and to guide the direction of the fall.

Asahel Curtis

gate that no land if it must continue to carry this overhead, can be made to reproduce timber as a crop without loss.

Of the area deforested in Washington, and in the hands of private owners, about a million acres have been or will be put to some sort of agricultural use. This leaves roughly four and a half million acres suited to forest production and which must be put to that use if any future revenue is to be derived. In addition to taxes there is the fire menace. The Forest Service has its fire protection service carried by the federal government. The several states of the coast have a fire protection service carried by the taxpayers. The owners of company and individual forest lands maintain a fire protection service of their own on a mutual assessment basis. It is plain, then, that the twin enemies of reforestation on privately logged-off lands are taxes and fire protection.

As these states have grown in population and wealth, land values have gone up. As the timber on individual holdings have become more and more accessible, stumpage values have likewise advanced. While assessors have increased these values year by year the activities of state and local government have been multiplying. So the tax rate has been climbing in proportion. Standing timber and logged-off lands have been compelled to carry their share of the increases in values and rates. Today the taxes levied average so high that they threaten to exceed the total value, or any future value, of new timber produced. For, taxing the land year after year while the crop is growing, and taxing the crop year after year until it is mature enough to cut will inevitably pile up an overhead which will make prohibitive the cost of lumber produced under such conditions.

It is obvious that lands taxed as these lands are at present, and as they have been taxed in the past, cannot yield even the smallest rate of return on investment and carrying charges if they are devoted to the growing of timber.

Washington is known as the "Evergreen State." If the "Evergreen State" is to remain green always forests must be perpetuated. If stream flow is to be regulated and the lowland areas made to produce annual agricultural crops, new forests must be encouraged to grow after the original tree growth has been removed. If there are to be recreational areas and scenic beauty is to be preserved in its original verdural



THE HIGH RIGGER—GOING UP!

*Asahel Curtis*

The climber will go aloft nearly 200 feet, cut off the top and use the immense fir as a pole to run high lines from to drag in the logs to the landing. He wears pole climbers and a piece of cable to go up the tree trunk, carrying a line with him with which to haul up the block and tackle.

coloring, trees must replace trees. If lumbering is to remain an industrial and commercial asset of these states, their forests must be perpetuated on a sound economic basis.

Conservation touches the life of all the people, affects the entire nation. But federal conservation alone is not sufficient for future lumber needs, nor will it suffice to make the best use of all the unused and otherwise unusable lands in these states. The states themselves must do their share. It rests with them whether or not owners of timber stands and logged-off lands are to be given an opportunity to participate,

for they control the situation, holding as they do, the power to relieve or increase the already heavy tax burden. It is up to these states to see that there must be a basis of equality from which the start can be made, and under which private ownership may operate unhampered and without undue discrimination.

It is not a question of competition between Federal Forests and private owners in this business of forestry, but clearly one of cooperation. That there is an inequality, however, works against private initiative in the business of producing timber for the future. Recognition of this inequality is the basis of the Pacific Coast plan.

Before a cooperative scheme of reforestation can be put into effect Washington and California must amend their respective constitutions, since under them, they are required to tax all property of every kind equally. This has been interpreted to mean timber and land without dis-

crimination as to the value of the land for growing trees only. Oregon has no such restrictive qualification in her constitution, yet Oregon has been pursuing the policy of taxing growing forest land increasingly as the crop matures. Taxes in many counties and districts in all these states often exceed the total assessed value of both land and the timber on it in from fifteen to twenty years. If it takes from 60 to 100 years to grow a crop to merchantable size and quality it can be seen that timber production under such conditions must be a losing instead of a paying business.

How the old methods of taxing land and timber at an increasing rate have been a bar to progress in reforestation, except within the National Forests, can be shown by comparing timber production to the business of growing grain or fruit crops and observing what it has done



Asahel Curtis

## LOGGED-OVER LAND

Logged in the foreground, with fine second growth in the background. A new forest will soon start here, where logging has been done in this way and the area lightly burned over, for the seed is in the ground, needing only air and sunshine for its germination and growth.



Asahel Curtis

## THE NEW FOREST

This is second-growth forest, taken 18 years after the original forest was logged off. One of the original cedars is seen in the right foreground, and old growth firs top the distant hill.



to put an unfair, unequal burden upon the land and timber carrying end of the lumber industry.

Trees for lumbering is a crop, like wheat, hay or apples, but it is unlike them in being a crop that rotates once a century instead of once a year. A crop of corn can be grown in a hundred days, but a crop of timber may require a growing period of one hundred years. To tax this crop each and every year in addition to taxing the land on a valuation as high as farm land valuations is as unreasonable as taxing the corn crop one hundred times while it is growing, and in addition to tax the land on a valuation basis far in excess of its productive possibilities.

In one county in Oregon the combined tax on timber tracts aggregates six per cent. The only way in which the owner may keep himself from being eaten up by taxes is to cut the timber and get what he can get out of it, as the six per cent, at least, will go on year after year, and this rate will probably increase as time goes on.

Take a case that is more or less typical and which will serve to illustrate the situation in any one of the three coast states. Let us say here is a section of timber with an average stand of 30,000 feet per acre, that the owner has held it twenty years and should not cut it for another twenty years. What happens to him? There are about 20,000,000 feet of timber on this section. The tax rate will average 3.5 per cent, which is below the present average. The land valuation is \$7 per acre. The county cruise is 20,000,000 feet. During a forty-year period the owner has paid a full land tax at the current rate forty consecutive times, which is about all the land will bear, and in addition he has paid a tax, not on one crop of 20,000,000 feet, but on 40 times 20,000,000 feet, or 800,000,000 feet of timber.

The wheat grower pays a tax on his wheat land alone, never on his crop. It is seed in the ground when the assessor comes around and it is harvested and sold before the assessor gets around again. In the one case the timber crop pays forty taxes and the wheat crops pay none.

No owner of timber lands will hold his timber any longer than he has to under such circumstances. It is for this reason that forests are disappearing more rapidly than need be. The timber owner is butchering his holdings to escape confiscatory taxes.

The lumber mills in Western Washington reporting to the West Coast Lumbermen's Association send in weekly reports something like this: "One hundred twenty-three mills reporting cut 103,000,000 feet, sold 90,000,000 feet and shipped 92,000,000 feet." They cut more than the demand for a period of months and then there is a close down for a few weeks to allow sales and shipments to rid them of accumulated stocks. If the manufacture continued unabated up to capacity, through the timber owner's desire to escape carrying charges, these mills—which

are not all, by any means, that are in operation—would cut annually 500,000,000 feet more than the market can absorb. If they were manufacturing 500,000,000 feet less than the demand the difference would be a billion feet a year, which would add a lease of more than twenty per cent to the life of the present forests in Western Washington alone; prices to the mills would be higher, the industry steadier and the market firmer.

Unless this new plan is adopted there are but two things the owner of logged-off non-agricultural lands can do: If he is strong enough financially he can hold them, pay taxes on them and leave them in idleness.

The other alternative is to allow them to revert to the county for taxes.

Some owners have held their lands for a long time in the hope that some such use could be made of them as would permit of profitable forest cultivation.

Many others are allowing the lands to go for taxes, believing that preferable to the long continued uncertainty of the past.

All are willing to put these lands back into production and reforest them for future needs if it is made possible for them to do so. And that is the reason for this plan.

While the bulk of the original forests of the coast states measured by the acre is now within the Nation Forests, measured by board feet it is in all probability still owned by individuals and timber companies. The federal reserves were created largely after the most desirable timber had passed to private ownership. The National Forests have many millions of acres of grazing lands, many million more acres of naked mountain tops, stream sources and hundreds of narrow mountain valleys. The average stand in board feet per acre is very low compared to the stand on the miles-wide benches and lowlands lying between the mountain ranges and the shores of the Pacific. The greatest trees in all the world grew there in forests of giants. Centuries were required to produce them. Their like will never be seen again. The forests of the future will scarce pass the century mark in age before they are marked for the ax. But new crops can be grown, century upon century, and the forests may thus be perpetuated in kind if not in size. Better cutting methods, a deeper public conscience with respect to fire—and in that we have made decided progress—and the widest possible use of areas fit only for forests, will make it possible to produce lumber for the requirements of the future.

One of the bills that will come before the legislatures of Washington, Oregon and California in 1927 says:

"The public welfare demands that steps be taken to encourage reforestation and to protect and promote the growth of new forests on lands chiefly valuable for that purpose in order that they may

(Continued on page 106)





THE PELICAN CHORUS

The grave line of choristers, robed in vestments of white, watch all proceedings with comical intentness.

## The Pelicans at Home

By ALFRED M. BAILEY

(With Photographs by the Author)

LOUISIANA is noted for its assemblage of bird life. Great hordes of wild fowl migrate down the Mississippi Valley to the Gulf each fall and then spread out over the wide stretching savan-

nahs—each species to its desire. Geese and ducks congregate in thousands on the sanctuaries so well protected by the State Department of Conservation, and the birds of lesser interest to sportsmen find safe refuge in the impenetrable tangle of southern marshes. Then, in the springtime, when these birds leave for their northern summer resorts, we find the sea-fowl arriving to take their places on the breeding islands along the Gulf Coast.

The pelicans are the largest of the sea birds to be found along our shores and both the white and brown species are common in Louisiana, although

only the latter nest. The pelican cities are situated on the off-lying islands, those of the "mud-lumps" at the mouth of the Mississippi River being the most interesting because of the density of the bird population. These islands, varying

from a few hundred square feet to several acres in extent, are some twenty in number and are said to have been pushed to the surface by pressure caused by the heavy deposits of silt from the "Father of Waters." They are situated at the entrance to Pass a l'Outre, the easternmost channel of the Mississippi, and they lie so closely together that all are easily in range of one's vision. The population of these pelican cities has been estimated several times, and by taking the average of competent ornithologists, it seems there are at least fifty thousand carrying on their home



THE NEST AND EGGS OF THE BROWN PELICAN

A crudely built platform of sticks is the repository for the three chalk-white eggs of the brown pelican.

life on those twenty little islets—fifty thousand pelicans, most of them being in sight at one time.

The vegetation of the islands is scant, only a few coarse grasses and nightshade growing sparingly. Indeed, the birds are so numerous that plant life has little chance to grow. And, as plant life is scarce, so is nesting material. The pelicans may be seen coming from afar, dangling long sticks to be used in the construction of their nests.

They begin to congregate on their home islands in April and housekeeping starts soon after. The old birds are undemonstrative and do not carry on elaborate courtship antics such as characterize many of our seabirds. The old male often walks about the lady of his choice with wings partly open, strutting slowly and heavily about, but he apparently never attempts a graceful performance for her



#### TWO BROWN BABIES

Naked, dark, skinny little fellows that "no one but a mother could love!" The down is just beginning to show on their backs and wings.



#### THREE STAGES IN THE LIFE OF THE YOUNG BIRDS

Entirely helpless at first, their prodigious appetites ensure their rapid physical development. A coat of down is soon acquired, which protects them from the blazing sun, and before long the young pelicans are pattering independently around their home islands. The two larger ones shown here are about ready to start out to see the world.

benefit. The outermost islands are occupied first and as these become crowded the nearer "lumps" are used, until finally all are densely populated with nesting birds.

The nests are crude platforms of sticks, clumsily woven together, and in these are deposited the three chalk-white eggs. About four weeks later the youngsters emerge from the shell and, surely, no other mother than a pelican could be proud of babies such as these! They are naked, dark, skinny, little fellows, looking like pieces of India-rubber. They are entirely helpless, and unless protected by the outstretched wings of the parent bird, are soon killed by the blazing sun. But pelican young have a habit of growing, even as all other children, and their appetites are prodigious. A coat of white down is soon acquired, which relieves them of some of their ugliness, and they then abandon their nests and go pattering around their home island.

This is the busy season in the birds' cities, for while one peli-



THE GREAT PELICAN COLONY FROM THE WATER—HAT ISLAND, GREAT SALT LAKE  
White pelicans were massed on the rocky slopes and the air was filled with sailing birds.

can remains to protect the young, the other commutes to distant scenes of activity, where he carries on his occupation as a fisherman. And what wonderful adepts they are! The pelicans circle over the Gulf waters until a school of the bony menhaden is sighted and then, diving headforemost, on folded

game fish, their eggs have been broken, and their young clubbed by foolish and ignorant people, but studies of their food habits by the United States Biological Survey and the State Department of Conservation have proven that the greater percentage of the fish they eat are unfit for human consumption.



#### THE MEAL BEGINS

Greedy baby pelican, with execrable table manners, plunges his bill, and quite often his whole head, into his mother's throat in his eagerness for food.

wing, they strike the water with a splash. The brown pelicans feed almost entirely on the surface, for no matter at what height they dive, they rarely disappear beneath the water. These birds have been persecuted as destroyers of



#### THE CARES OF PARENTHOOD

A mother pelican, whose tiny fledglings must still be protected from the blazing sun by her spreading wings, discusses housekeeping responsibilities with a brooding neighbor.



THE BUILDERS

Housekeeping is on in dead earnest. Sticks of the right kind are in great demand for the construction of the home and "Pa" Pelican makes many a weary flight bringing in nesting material designed to meet the critical requirements of his mate.

In the evening long lines of returning birds may be seen on their homeward journey. There is no more peaceful sight in the world than a string of pelicans sailing majestically close to the surface of the glistening Gulf—a few strong beats of their great pinions, and all birds sailing in unison, each body and outstretched wing mirrored in the placid water.

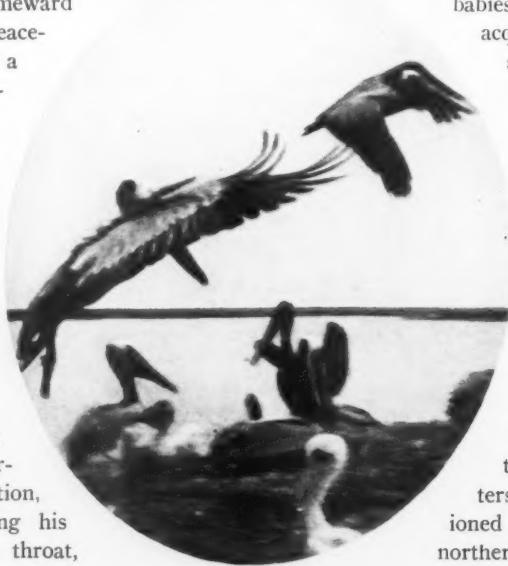
And what a hubbub greets the newcomer! The youngsters literally mob the parent bird in their eagerness. Their table manners are deplorable, but efficient. They are fed on partially digested fish, by regurgitation, the baby pelican often thrusting his whole head down the parent's throat, while the rest of the brood, and many of the neighbor's children, gather about in the hope that their turn is next.

The youngsters often gorge themselves so they can barely stagger about; in fact, I have many times seen them stumble on their breasts and roll over on their backs, with feet kicking feebly in the air. When placed on their feet they quickly

disgorge and paddle awkwardly away. The babies grow rapidly and soon begin to acquire feathers in the wings and shoulder tracts. They take to the water readily when an intruder approaches, and great rafts of them often swim far off shore. The young are slow to fly and are cared for by the parent birds until able to shift for themselves, and then, after a few months along the shores of the Gulf, they join the hordes of southward-bound birds to the warm coast of Central America.

But even before the majority of the brown pelicans leave our waters great flocks of the black-pinioned white pelicans arrive from their northern breeding grounds. They assemble on wide-stretching bars where hundreds sun themselves in placid contentment, taking wing only when hunger calls. There are a few records of white pelicans nesting along the Gulf coast but

by far the greater percentage nest on inland waters—in Manitoba, Saskatchewan, Oregon, Nevada, Utah and the Salton Sea. There is a wonderful colony on Hat



"TAKING OFF"

Though ungainly, awkward and droll in repose, the pelican in flight often exemplifies grace and beauty.



Island in Great Salt Lake, some forty miles from Salt Lake City. The island is but a few hundred yards in length and is very rocky, the north shore being composed of broken boulders and lined with drift wood, while the protected beach is of fine sand. As we approached the islet, we could see a solid white mass, which soon took to wing, the beautiful birds glistening in the bright light. They circled the boat, and as we anchored inshore, the majority of the flock settled upon the quiet water.

The pelicans were in the height of their nesting for there were fresh eggs and half grown young—each little community of birds evidently having begun domestic duties at the same time, for we found naked, helpless babies on one part of the island, fresh eggs on another, and on the protected slopes were nearly half-grown young. These pelicans normally lay but two eggs and their nests are varied from bulky, loosely-built platforms to mere depressions in the sand. When first



CHAIRMAN OF THE RECEPTION COMMITTEE

A party is on and with feathers preened and smoothed to the last degree, Mrs. Pelican awaits the coming of the guests with anxious eye.

hatched the young are similar to those of the brown pelican, except in color, for they are a yellowish flesh-color, almost a tan, while the brown pelicans are a dark slate-blue. The white pelicans are the same droll, good-natured fellows as their brown cousins, their incubation period is about the same, they feed their babies in a similar manner, and when the young acquire the white down they are very like the fuzzy youngsters of the brown pelicans.

In securing food, however, the white pelican differs, radically, for while the brown bird drops from a height, the white fellow secures his food by swimming or wading. They are a good example of the efficiency of co-operation, for as the fish swim into shallow water, a whole line of pelicans quietly surrounds them, like a great net, and then, with a flapping of wings the birds work inshore, gorging themselves as they go. There being no fish in Great Salt Lake, the pelicans must make long flights daily for their food, many of them often



THE ARRIVAL

Proving their exclusiveness and familiarity with good social usage, the snowy guests call quietly in, arriving in small cliques, to greet their hostess.

flying two hundred miles. These birds, also, have been accused of being destroyers of game fishes, and on one occasion a party of men raided Hat Island, killing all the birds possible. Fortunately, many of the young were large enough to escape to the water, so the colony was not destroyed. Investigations of the food habits of this wonderful bird by the U.S. Biological Survey have proven the greater percentage of fish consumed to be of no value to man, so it is hoped the birds of Hat Island will be protected in the future.

The pelican encounters many dangers beside man, and as he is not aggressive, is easily imposed upon. The California Gulls on Hat Island watch eagerly for unprotected eggs or young, and great is the destruction they cause, while on the Gulf coast, storms and predatory animals raise havoc among the nesting brown pelicans. Grand Cochere, a small island of the

Chandeleur chain, had about twelve hundred nests of pelicans in June, 1918. A month later only a couple of hundred nests remained, due to the ravages of raccoons. The following year two feet of water covered the whole island!

Without its flock of pelicans, many of our waterscapes would be drear indeed. They are harmless, goodnatured old loafers during the winter and industrious workers through the summer; they work when they have to and rest when they can; there

is something human about a pelican. He deserves protection and with an aroused interest in wild life, he is assured a permanent place in the list of our protected colonies of nesting birds. With Federal and State cooperation,

our wild fowl will increase until they crowd their sanctuaries, and we will pass on a fitting heritage to the generations to come.



AND THE "KAFFEE-KLATCH" IS ON!

With a bustle and clatter of greetings, and a great bending of necks this way and that, so that no spicy bit of pelicanland gossip may be lost—we take a last glimpse of "the pelicans at home."

## Forestry Legislation at Washington

LAST month marked the passage of the Agricultural Appropriation bill by the Senate and prolonged conferences on some fifty-two points of disagreement between the two Houses. The Senate passed the bill with several increases affecting forestry following hearings at which representatives of The American Forestry Association and other interested groups appeared. The four items include: the recommended increase of \$6,544 for fire weather warning which would have brought the total of this item up to \$25,000, the conferees finally agreeing on an increase of \$5,073, which brought the total to \$23,529; \$40,000 for the Forest Products Laboratory, \$9,736 of which was agreed upon by the conferees, making the total \$500,000; \$10,000 for the Southern Forest Experiment Station to be used in naval stores investigations, \$5,000 of which was agreed upon by the conferees, and \$33,095 for work on chestnut blight and blight-resistant stock. \$24,255 of which was agreed upon by the conferees. The President has signed the bill which carries a total appropriation of \$128,511,739.

Two notable increases upon which there was no disagreement between the Senate and the House in passing the bill were \$290,000 for cooperative fire protection, making the total \$1,000,000, and an increase of \$100,000 for western white pine blister rust work under the Bureau of Plant Industry, making the total \$471,520.

At the time of going to press the McNary-Woodruff bill, S.718, had not yet been considered by the Senate but it was daily expected that it would be brought up. Continued interest on the part of friends of the bill throughout the country will help to assure consideration during this session which is particularly harassed with international and other controversial questions.

The National Arboretum bill is on the Union Calendar of the House but the Senate bill which was amended is before the House Committee on Agriculture for further consideration. It is hoped that agreement will be reached and the bill passed this session. No action has been taken on the several bills affecting grazing on the National Forests or public domain.

Senator Fletcher's bill to authorize \$50,000 for Naval Stores investigations for the Southern Forest Experiment Station has not yet come up for a hearing in the Senate Committee on Agriculture and Forestry.

Congressman Albert Johnson's bill for \$50,000 to enable the Northern Rocky Mountain Forest Experiment Station to enlarge its research work on white pine blister rust, fire and grazing is yet to be considered by the House Committee on Agriculture.

The bill to authorize \$200,000 a year for five years for cooperation in building special fire prevention improvements in the five southern California National Forests, and which passed the Senate last session, is still before the House with the disapproval of the Budget. Congressman Lineberger hopes to push this bill but will be somewhat handicapped by the fact that the Agricultural Appropriation bill for 1928 carries \$100,000 for this purpose as did the urgent deficiency bill for the present fiscal year.

Considerable interest has been stirred up by a Senate bill calling upon the Federal Government to turn over to the public land states the Federal land holdings within these states. Secretary Work has pointed out to the Senate Public Lands Committee in a letter that the total value of these lands and resources exceeds thirteen billion dollars. It is not expected that the bill will be favorably reported or considered by the Senate this session.

# Society of American Foresters Hold Twenty-Sixth Annual Meeting

**B**ETWEEN one and two hundred strong and representing various local sections, the Society of American Forester held its twenty-sixth annual meeting at the University of Pennsylvania, Philadelphia, December 29 and 30, 1926.

The Society meeting was preceded on December 28 by a conference of the Forest School men, to discuss questions of forest education in its relation to the practice and profession of forestry.

President S. T. Dana, Director of the Northeastern Forest Experiment station, opened the meeting. The morning session on the first day was given over largely to questions of Society affairs and to reports of the Secretary, Treasurer and the Executive Council. These were followed by a series of papers dealing with the practice of forestry on private lands from the standpoints of the private forester, the forest products associations, the Forest Products Laboratory at Madison, state and other agencies. Among the speakers of the first day's session were Colonel W. B. Greeley, Chief of the Forest Service; C. P. Winslow, Director of the Forest Products Laboratory; Joshua A. Cope and A. B. Recknagel, both of Cornell University.

The annual banquet, held that evening, was made the occasion of a real get-together meeting, participated in by members of the Society from all parts of the United States. Paul G. Redington, Vice President of the Society, acted as toastmaster. It had been hoped that Pennsylvania's forester-governor, Gifford Pinchot, could be present at the banquet but this did not prove possible. Under Mr. Redington's skillful guidance every member

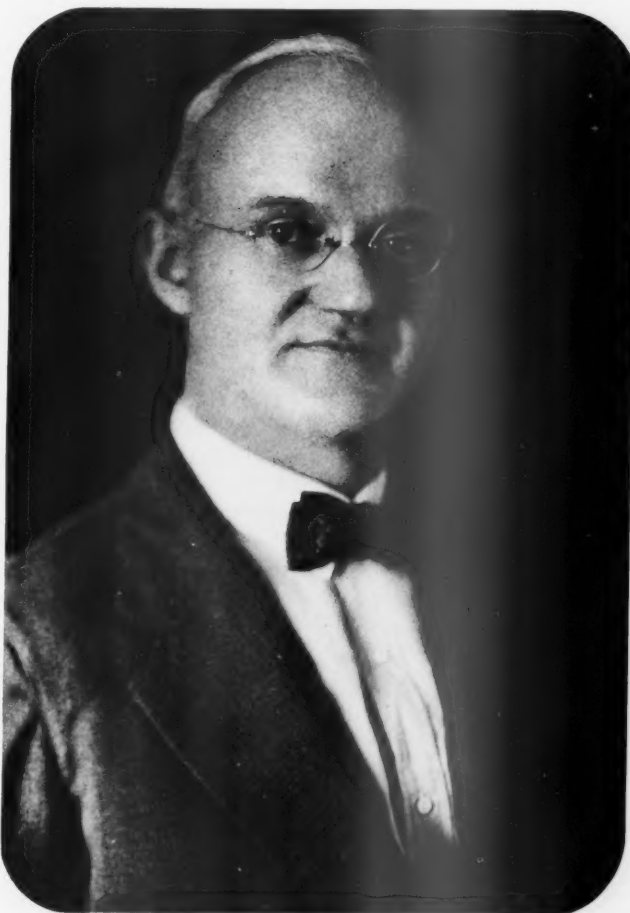
who had a song, poem or story in his repertoire was made in scientific parlance to "do his stuff." It was a memorable evening.

On the second day of the meeting, the relationship between weather and forest fires was discussed with a great deal of interest from the point of view of the fire

executive, the weather man and the private forest owner. Roy Headley, Assistant Forester of the United States Forest Service, and officer in charge of fire protection on the federal timber lands, led the discussion with a paper outlining the needs of the forester whose responsibility is the protection of large areas of forest land. "The fire executive," said Mr. Headley, "guesses and gambles. He needs expert predictions to guide him. Short-time weather forecasts will not help. He wants to know what to expect a week or so ahead, and particularly he wants to know all of the factors that influence the degree of fire danger."

Dr. C. F. Marvin, Chief of the United States Weather Bureau, followed Mr. Headley and outlined the present program of systematic observation, leading to

the development of new data that may be helpful to the forester. He pointed out that the extension of the period of time of forecast is one of the most difficult problems the Weather Bureau is presented with. "Long-range forecast," said Dr. Marvin, "from solar radiation or anything else has not yet been realized. We have not yet solved the problem of accurate forecast weeks and months in advance. Much has been accomplished and the possibilities of more are great, but they will



R. Y. STUART

Recently elected President of the Society of American Foresters.



have to be worked out step by step. With the cooperation of the foresters, the Weather Bureau is in this work to do its best and will continue to do no less."

Dr. Marvin was followed by E. B. Calvert, Chief of the Forecast Division of the Weather Bureau, who outlined the beginning of the organization for the study of fire weather warning activities and of the methods installed.

Mr. A. C. Burrill, of Bethlehem, Pennsylvania, who has been engaged in personal observations of forecasting fire weather, outlined briefly some of the results that had come under his own observation. Dr. L. F. Hawley, of the Forest Products Laboratory, spoke for a few moments on the necessity of definitely knowing just what are the most important factors with regard to forest fires in order that research in this direction may be most effective. "It is a question of trying to find out what is required in order to begin the experimental work to the best advantage," said Dr. Hawley. "Temperature in itself has very little to do with the start or spread of forest fires. A difference of one-half of one percent in

the moisture content of fuel is more important than a difference of fifty percent in temperature. So we are trying to find out what are the important factors in order to confine our studies to these."

The afternoon session was begun by a short talk, illustrated with lantern slides, by Mr. Phillips, in charge of American Forest Week activities for the Pennsylvania Forest Service. Joseph S. Illick spoke on "A Few Trends in Pennsylvania Forestry." Mr. Keller, also of Pennsylvania, spoke on nursery practice, and G. H. Collingwood, Secretary of the Society, spoke on the subject of forest extension.

The closing hours of the meeting were given over to proposed changes of the constitution in regard to various matters, among which were questions of membership, changes in the Executive Council, and in the election of officers. For 1927, the officers chosen are as follows: President, Major R. Y. Stuart, Secretary of Forest and Waters, Pennsylvania; Vice-President, Richard T. Fisher, Director of the Harvard Forest; Secretary, J. H. Farenbach, and Treasurer, S. B. Detweiler.

## A National Program of Forest Research

**P**ERHAPS the first attempt to estimate on a nationwide scale what science has attempted in forest research in this country and what it must yet undertake has just been prepared as the report of a committee appointed by the Washington, D. C., Section of the Society of American Foresters. It bears the title "A National Program of Forest Research." The report is largely the work of Earl H. Clapp, Assistant Forester of the United States Forest Service and Chairman of the committee whose other members are A. B. Hastings, formerly Assistant Forester of Virginia, and R. C. Hall, until recently Valuation Engineer in the timber section of the Bureau of Internal Revenue. The report itself, an attractive 230 page book, has been published for the Society by the American Tree Association.

The committee was appointed in 1924 in response to a plea by Colonel William B. Greeley for action that might stimulate and correlate research activities. The complexity of the field covered by the committee is indicated in the great diversity of problems to be solved. These range from the necessity for increasing our dwindling local supplies of pulpwood to the question of how many cattle or sheep may profitably be grazed on forest land and in what season. They involve the study not only of growing trees but of the soils they grow in, the climate that affects them, the insects and diseases that attack them, the vegetation that grows with them and the wild life about them. It touches on problems that have to do with the manner in which the trees are cut, and the lumber milled, as well as its treatment with preservatives, its seasoning and how it is worked into secondary products such as furniture and other wooden articles. The study includes such

diverse forest products as veneer and cordwood, newsprint and turpentine, marine piling and cellulose.

Forest economics is another field in which the committee points to our relatively slight achievements and the very considerable advances we must make in the future. Forest land, for example, must be adequately classified; timber growth and timber consumption must be estimated accurately for the whole nation; forest taxation must be studied; attention must be given to lumber distribution, transportation and prices are broad and important studies in themselves.

One of the most effective contributions which this report makes toward stimulating forest research is its success in presenting the big, broad outlines as well as the details of this complex subject. Forest research is of vital importance in that it has to do with the proper development of an area equal to one-fourth of our total land area. It involves the adequate supply and the proper utilization of a raw material that has been adapted to more uses in our civilization than has any other substance. The group of industries benefited by forest research is of great importance economically, for the value of the combined products is about four billion dollars yearly. The United States now has, and with sufficient scientific knowledge can perpetuate, the richest temperate zone forest in the world. And in emphasizing these facts the committee presents as alternative courses either the necessity of muddling through with unscientific and expensive "trial and error" methods or establishing a national program of forest research commensurate with the vast value of the resources to be perpetuated and utilized.

"Two methods and only two, says the report, "can be



used to obtain the knowledge which no one will deny that we need fully to supply our timber requirements and to utilize our forest land. The first is the gradual building up of such knowledge through long commercial trial and use and the handing down of results by tradition. It is essentially the method of trial and error. The second method is through research. The research method would employ highly trained investigators who would devote their full time to finding the facts which underlie the growing and use of forests. They would work planwise on the most important, far-reaching and urgent phases of the problems requiring solution. The ultimate whys and wherefores, the basic laws, would be ascertained. The conclusive findings would be obtained in a much shorter time and at much lower cost."

In its early pages, the report states definitely and clearly the forest problem of the United States—a forest problem stated in terms of timber requirement and of forest land use. "We could, to be sure," says the report "exist without wood just as without steel, cement, coal or without such food products as wheat. But the losses in lower standards of living and in restriction to industrial development would be almost incalculable. Picture, for example, the American home without lumber, the American farm without wood fuel, any American industry without wooden or fiber boxes for shipping its products or without lumber for a myriad of uses. Our coal mines without mine props, our railroads without wooden ties, the American people without newsprint and then decide whether we can let wood pass out of our national life."

Since the forest problem of the United States is at bottom one of land use and since wheat and corn, domestic livestock and wood are equally products of the land, various phases of forestry and of forest research are largely a function of the United States Department of Agriculture. The committee believes that an organic act for this department is the first development of outstanding importance to be recommended in a detailed way. Accordingly it has recommended the following list of authorizations for annual expenditures by classes of forest research:

A national program of regional forest experiment stations to cover silviculture and protection from fire, Forest Service.....	\$1,000,000
Forest pathology (largely in cooperation with the Forest Experiment Stations) Bureau of Plant Industry.....	225,000
Forest entomology (largely in cooperation with the Forest Experiment Stations), Bureau of Entomology.....	225,000
Forest fire meteorology, Weather Bureau....	50,000
Forest products, Forest Service.....	\$1,000,000
Tropical woods, Forest Service.....	50,000
Grazing research, Forest Service.....	275,000
Wild forest life, Biological Survey.....	75,000
Forest economics, Forest Service.....	250,000

It is estimated that within ten years the total annual

expenditures for forest research among all agencies, public and private shall be increased from \$2,600,000 to at least \$9,000,000 and preferably \$12,000,000. These sums are considered moderate in view both of the urgent needs of the situation and of the large expenditures for research in agriculture and in many of our principal industries. An endowed forest research institution, with an annual income of about \$1,000,000 is also strongly urged. This would carry on such fundamental research projects as other agencies have neither time nor facilities to undertake.

The publication of this report marks a tremendously significant step toward placing forest research upon a plane enjoyed by research in other fields and which, because of its tremendous importance and fundamental basic character, should be demanded in the field of forestry.

## An Equine Odometer

TOWARD the end of a hard day's ride over a mountain trail, it's a pleasure to find a direction sign which gives the distance to the nearest cow camp, summer resort, or other human habitation. And it's an added satisfaction to read it with a knowledge that the distance



THE ONE-WHEEL SULKY RANGER DORAN USED TO MEASURE THE MILEAGE AND RECORD THE DISTANCES IN HIS DISTRICT

indicated is within 100 or 200 per cent of the actual distance on the ground.

Ranger William Doran of the Uncompahgre National Forest sympathizes with this feeling and has set out to record such distances to the complete satisfaction of the most particular. With a light, one-wheel sulky, he has covered every trail in his ranger district, measuring the mileage with an ordinary bicycle odometer. His distances have not as yet been reduced to horizontal equivalents, but in view of the fact that he is serving travelers and not land owners, the actual ups and downs of the trail are really the important thing.

Ranger Doran suggests that a little fun might be combined with business by hitching the shafts to an inexperienced "bronc."



THE LONE PINE VISTA

Grand indeed, and outstanding in its scenic characteristics, is the panoramic view from the Lone Pine, where it stands high on the mountains south of Paradise Valley, in Rainier National Park. The great Nisqually Glacier, five miles long, is seen in the background.

## National and State Parks

By HENRY S. GRAVES

*(Photographs by courtesy of the National Park Service)*

**T**HE United States is struggling to evolve a policy of National and State parks. The halting and often inconsistent action of Congress in connection with National Parks, the differences of opinion among friends of the park movement in regard to public policies and the opposition in various quarters to park extension in general testify to the fact that there is today no clearly defined policy of National Parks that may be regarded as settled. In the same way there is a great divergence among the states in regard to public parks and there is the same struggle to find a basis

**What part should the public parks play in our great system of public reservations? What policy is to be pursued in extending the National Parks? And what standards should govern?**

These questions of peculiarly timely interest Col. Graves discusses frankly and constructively in this article.

for a sound and permanent park policy as in the case of the Government. There are still widely differing opinions in regard to what should be placed in public parks and in regard to the principles of their administration; and as yet there is no accepted policy defining the respective responsibilities of the federal Government and the states in park matters. The public interests involved in the public parks are too great

to permit differences of opinion and controversies to retard their development. Every effort should be made now to discover a basis of sound principles that can be

generally accepted and can be consistently followed in the selection of areas to be incorporated in the park system, and in the organization and administration of the parks to enable them to render their highest service.

It may well be agreed that the first objective of National and State Parks is to preserve certain areas which contain natural features of exceptional scenic, historic, and scientific interest. It will be further agreed that such areas should be brought under some form of public ownership, in order to assure their permanent protection and an administration that will enable them to render their highest service.

At the same time it should be borne in mind that there are also other objectives of public ownership of land and that the reservations established to carry out these objectives may contain natural features of great importance. In other words the preservation of our natural wonders is only one feature of a larger program of public ownership of lands.

We have already inaugurated a system of public reservations as a part of a program of conservation of our

natural resources. Wisely or unwisely, we have not placed these various reservations in a single class or placed them under a single management. Thus the federal reservations fall under the head of National Forests, National Parks, Game Preserves, National Monuments, and other titles in the case of those designed primarily for the control of waterpower sites, coal, oil, phosphate deposits, water holes in the arid regions and the like.

In all of these various classes of public reservations are to be found areas of great scenic interest. In many of them, however, there are large interests and values that call for a different type of administration than that appropriate for public parks.<sup>6</sup> It is clear that our first problem is

to determine what type of lands should be set aside specifically as parks, with the understanding that in the other classes of reservations proper provision would be made for protecting the natural features of unusual scenic interest.

In the interest of clarity it is desirable to review at the start the classes of land that should be under some

**"A National Park 'problem' arose when with the extension of the system the original standards were departed from, when areas of mediocre character were incorporated in the Park system and when the effort was made to use the National Park for ends that were not appropriate or which could equally well be accomplished through some other means. . . There is just one criterion for creating National Parks and that is the character of the land and the existence of natural features of exceptional interest."**



IN BEAUTIFUL GLACIER NATIONAL PARK

Kiser

Here, at the head of St. Mary's Lake, is found scenery typical of the region, highly justifying its classification as National Park land.



*Courtesy Atchison, Topeka and Santa Fe Railway*

#### THE GRAND CANYON OF THE COLORADO

Taken from Grand View Point, this view of the great cleft—"masterpiece of erosion"—typifies the high standard set for our National Parks, for this example of scenic grandeur is unmatched in all the world.

form of public ownership, confining ourselves to those which may have some relationship to the development of a public park policy. These may be enumerated under the following categories:

1. Areas of special scenic interest including unusual features in the mountains, along rivers, streams, and lakes, and exceptional areas on the sea coast.
2. Forest lands needed for the protection of soils and waters.
3. Forest lands that should be publicly owned as a feature in a comprehensive program of providing for a permanent supply of timber and other forest products.
4. Areas of forest containing trees and stands of exceptional size, majesty, and beauty, typified by the giant sequoias and the Coast redwoods.
5. Areas of forest or open land representing different types of natural growth of special importance to science.
6. Areas containing objects of archaeological interest.
7. Areas containing volcanoes, mineral springs or unusual caverns.
8. Areas required for the perpetuation of game, bird life, and fisheries.
9. Areas essential for public recreation.

The foregoing classification does not include all land

that should be publicly owned. The reservations designed to protect water power sites, coal, oil, and phosphates, public watering places in the arid region and the like may be left out of the present discussion.

The determination of what areas should be held under public ownership is a task of real statesmanship. It involves a very painstaking and expert study of the physical and economic conditions of the different parts of the country, wise foresight as to the future needs of the public and an understanding of practical questions of administering public properties. We have already inaugurated a system of public reservations to insure the proper handling of the various classes of land indicated in the foregoing list. Some of these are owned by the nation itself, some by the states, some by counties and municipalities. We are endeavoring to extend this system, through acquiring more public forests, parks, game preserves, and monuments.

What part should the public park play in this great system of public reservations? It will simplify the discussion of this question, if we consider first the problem of the National Parks, because there are certain features distinguishing the federal from the state problem of parks.

The conception of the National Park arose from a



public demand to set aside and to preserve for all time certain natural features of extraordinary beauty and interest. Some of our greatest natural wonders fortunately had not been disposed of by the Government during the years of land distribution. The National Park was chosen by Congress as the appropriate form of reservation for the administration of such areas and the present system has been built up on the foundation of the Yellowstone, Yosemite, Glacier, Mt. Rainier, Grand Canyon, and other areas of exceptional scenic character which still remained under federal control. In regard to this policy there was no dispute. The class of land incorporated in the great Parks was so distinctive, and the character of the natural features so outstanding that all recognized the propriety of creating a special type of reservation, with laws granting special authority for their protection and administration.

Historically the National Park preceded the National Forest. The Yellowstone Park was created in 1872; the National Forest system was inaugurated in 1891. Later

the two systems of reservation were developed side by side, various of the Parks being established by the transfer of areas originally set aside as National Forests. There was no fundamental difficulty in carrying on the

dual system of public reserves, as long as there existed a real distinction in the character of land constituting them, and in their public functions. A National Park "problem" arose when with the extension of the system the original standards were departed from when areas of mediocre character were incorporated in the Park system and when the effort was made to use the National Park for ends that were not appropriate or which could equally well be accomplished through some other means.

The first real problem has resulted from the tendency to regard public recreation as one of the primary objectives of establishing National Parks. Recreation

constitutes a feature of Park administration because the very existence of the unusual and interesting natural features attracts great numbers of visitors for whose comfort and convenience provision must be made. But the basic idea of National Parks is not to provide public



MIRROR LAKE, IN YOSEMITE—THE INCOMPARABLE

James V. Lloyd

For sheer beauty of scenery, the Yosemite National Park stands alone. Her exquisite waterfalls, her great and rugged cliffs, her beautiful reflecting lakes set this jewel of a National Park high in the crown of our national possessions.

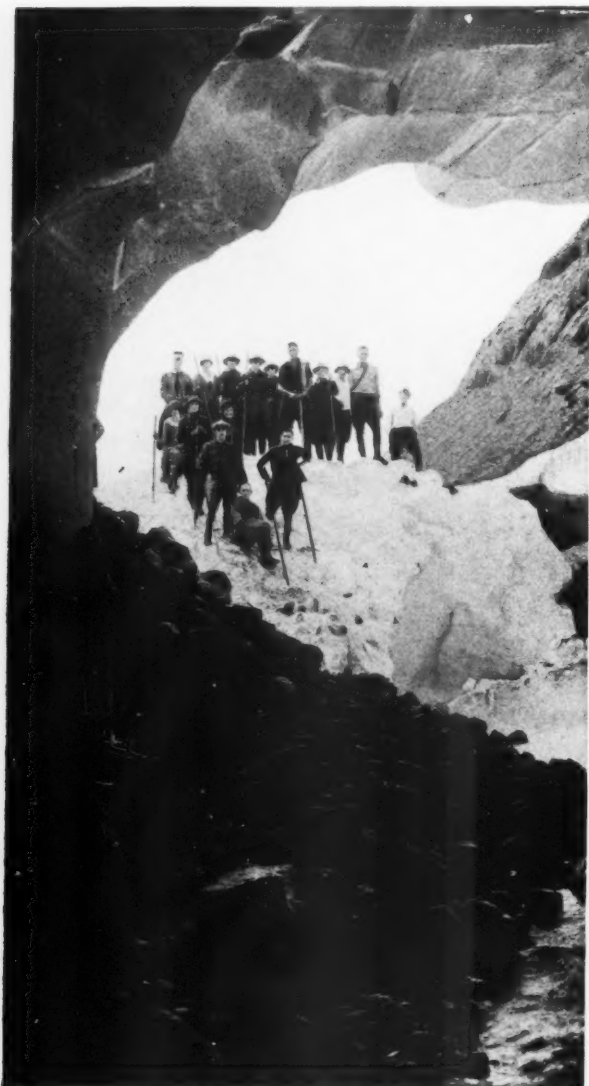
playgrounds. Every public reservation may serve that end. The idea of recreation as an end justifying the establishment of National Parks has led to the effort to make the Park the instrument for all recreation problems. From this influence have come the proposals to transfer to the Parks great areas of National Forests, regardless of the effect of such a transfer on the public service of the Forests; and similarly there have even

nities to urge that some near-by scenic feature be set aside as a Park so as to attract tourists to their localities. Enthusiasts for highway development have proposed more Parks so as to constitute a chain of resorts for the pleasure of motorists. The standard of service of a Park has sometimes been measured by the possible number of people who may use it for recreation, and the mere existence of a large area of wild land, near a center of population, has often been deemed sufficient justification for a National Park regardless of its special scenic character.

The National Park is restrictive in every way. The number of parks should be limited to areas of very extraordinary and distinctive character. The National Park should not be regarded as a general form of reservation, convenient to accomplish miscellaneous public purposes. The fact that the parks render a variety of services does not mean that the secondary benefits should constitute a primary reason for establishing a park. The Yellowstone Park, because of the existence of its lakes, streams, and forests, serves in a magnificent way in the protection of water resources, but this does not mean that watershed protection should be a primary purpose in establishing National Parks. There is just one criterion for creating National Parks and that is the character of the land and the existence of natural features of exceptional interest.

The number and extent of National Parks will be limited not only by the necessity to maintain the standards of their natural features. There is also the serious problem of including in their boundaries natural resources of great economic value. Very wisely the Government has definitely adopted a policy of prohibiting the commercial development of the timber and other natural resources in the National Parks. It is presumed that the Parks contain only areas of such exceptional character from the scenic, historic or scientific standpoint that they should be consecrated to the sole service of natural preserves. In many cases it happens that natural resources of prospective economic value will have to be included. Forests certainly constitute an important scenic feature of the Parks and the same is true of water resources. But the enthusiasm of many friends of the Park system have led to proposals to extend the limits of the Parks to include large bodies of commercially valuable timber or other resources whose use in the economic development of the regions is absolutely inevitable. The presence of extensive natural resources in the Parks will constitute a standing menace to the system. Economic pressure will force the restriction of the boundaries, or break down the principle of "complete conservation" that prohibits the use of these resources, or will jeopardize the very existence of the Parks.

At this point it may be of interest to make reference to the policies of Continental Europe in the matter of National Parks. It will come as a surprise to many to know that the conception of the National Park is dis-



AN EXPLORATION PARTY IN RAINIER

With Nature Guides, the party is about to enter one of the great ice caves in Paradise Glacier, in Rainier National Park.

been serious proposals that the National Park Service assume the management of the recreation features on the National Forests.

A second result of the new conception of the real object of the National Park system has been to propose the establishment of many areas of very ordinary standards of scenic interest. The popularity of the National Parks as vacation resorts has caused various commu-

tinctly American. We have been so accustomed to point to Europe for examples in conservation and in preserving their areas of scenic value that doubtless many believe that they have long had a system of National Parks. There are two reasons for the lack of National Parks in Europe as we conceive that term. The first is that the natural resources are so valuable that the countries cannot afford to withdraw them from use. The second reason is that the administration of the forests has been such that the need of a special type of reservation separate from the public forests has not been felt. Within very recent years France has established a National Park in the department of Isère in the French Alps, and Switzerland has established a National Park in the Engadine. In both cases only the areas of exceptional scenic wonder and special scientific interest have been included. The areas have been restricted to exclude forests which have a great economic value or are not needed for protective purposes.

We think of the forest of Fontainebleau as one of the important recreation forests of the world. So far as I know there has been no suggestion of making it a National Park. The French Forest Service jealously guards the massive and picturesque trees of great age and otherwise protects its scenic features. At the same time a certain amount of cutting of timber is carried on. This is confined to the areas not commonly visited and to cuttings needed for the improvement and perpetuation of the forest. The great bulk of the problems of protecting the scenic features of Continental Europe and the recreation questions are handled as a feature of the administration of the public forests. Such National Parks as have been established comprise areas of very exceptional and commanding character that make them stand out from a scenic standpoint above all other areas. They are administered by the Government forest services.

Our National Forests are chiefly located in the mountain and wilderness regions of the country. They contain scenery of great variety, grandeur, and charm. Rugged mountains, beautiful lakes and streams, magnificent forests, slopes covered with flowering shrubs, open swales and meadows and in the Southwest, desert vegetation of peculiar interest. Existing laws and administrative authority permit the full protection of the areas of special esthetic and scientific value. Hundreds of thousands of people go to them for vacation outings. They are today performing a great public service in safeguarding a large amount of the scenic resources of the country. The most outstanding areas have been transferred to the National Parks. The remaining areas of special interest are protected as a part of the administration of the extensive forest areas within which they lie. It would seriously cut into the integrity of the National Forests and impair their service to the public to segregate a large number of relatively small tracts to be handled under a separate administration. Such a step would be a crass blunder from the viewpoint of public administration.

From every standpoint the National Park has a distinc-

tive and important place in our national system of reservations. It seems to me clear, however, that a decision must be made very soon as to what the guiding principles of the expansion of the parks shall be. Are they to be restricted only to areas of the most commanding natural features which distinguish them from all other forms of public reservation? Or are we going to build up a vast system of parks with public recreation



THE FALLS OF THE YELLOWSTONE

The glory of rushing water cuts its way through a canyon splashed with myriad colors of bewildering hues in the Yellowstone National Park.

as one of the actuating motives in their selection, including in them many areas that are not essentially different from lands included in National and State Forests or State Parks? If the decision is in favor of the second policy—and there is a very distinct trend in that direction—the term National Park will lose much of its present significance due to the lowering of the standards and character of the areas called Parks. It is easy to foresee that such a policy will merely add to the present confusion between public parks and forests, and will

make it very difficult to work out a coordinated system of parks and forests dovetailing together and closely articulated in their administration.

One of the greatest elements of success of national reservations of any kind is certainty and continuity of policy. It takes many years to bring wilderness areas into a condition to provide the public benefits that may be derived from them. In National Forest administration it is particularly important definitely to fix the boundaries and to settle the policy of handling different portions of the areas. It is disastrous constantly to shift the boundaries or to exclude areas that form an integral part of an administrative unit. It is serious from the standpoint of handling the public properties efficiently; and it greatly weakens the confidence of the public in the whole enterprise. It is, therefore, of the greatest importance to determine now the policy which will be pursued in extending the National Parks. It would be unfortunate from every public standpoint to continue the present unsettling pressure to transfer this or that area from the National Forests with all the disturbance and friction that is consequent on such proposals.

From time to time there are suggestions made in regard to reorganizing the Government bureaus in order to secure a closer coordination of the Park and Forest Services. We are, however, dealing with a deeper question. We are concerned with classifying land. If we have a sound policy in regard to what class of land should be incorporated in National Parks, the question of administration will take care of itself. If we have an unsound policy regarding the lands, no amount of organizing and reorganizing of bureaus will prevent friction and controversies.

EDITOR'S NOTE:—In the March number, Col. Graves will discuss State Parks and the principles which should be considered in developing a state park policy.

## Association Officers Elected

As we go to press, the results of the election of officers of The American Forestry Association for 1927 are reported by the tellers.

George D. Pratt, has been re-elected President of the Association, and George O. Vass, Treasurer.

The following Vice-Presidents were elected: Daniel Carter Beard, Miss Martha Berry, Clarence B. Blethen, Mrs. Bertha Chapman Cady, D. C. Everest, Richard T. Fisher, Everett G. Griggs, Fairfax Harrison, Carl Hayden, Walter L. Huber, A. E. Humphreys, William M. Jardine, Otis R. Johnson, John L. Kaul, A. W. Laird, Charles L. McNary, A. A. Murphree, L. J. Taber, Sir Henry Thornton, Tom Wallace and Owen D. Young.

The three Directors elected for five-year terms are J. E. Aldred, W. B. Greeley and John C. Merriam.

Both recommendations for amendments to the By-Laws of the Association were passed.

## To a Tree

O comrade  
With arms uplifted in benediction  
And mighty shoulders  
Reared stalwart in uprightness;  
Heart open to the stars;  
Whence comes thy strength,  
Thy leafy loveliness?

My comrade then  
Made answer unto me:  
"From the brown unconscious earth  
Draw I strength and sustenance!  
All its swart cold hardness,  
Its mold and dross,  
I grapple in the dark with;  
And conjuring with water, air,  
And sweet radiance of sunshine  
I purge me clean  
With slow transforming fire of life  
And build into the fiber of my being—  
Sinew, bark, and leaves."

O comrade  
With arms uplifted in benediction  
And mighty shoulders  
Reared stalwart in uprightness;  
Heart open to the stars;  
Where lies the secret of my joy  
In thy companionship?

"Why, in our common nature!"  
Whispered he  
From out his leafiness to me.  
"Are we not brother lovers  
Of the wide blue heaven,  
The brown sweet scented earth,  
The sun, the moon, the stars,  
The rain, the wind, the dew?  
Are we not alike beset  
And scourged with storms?  
Do not we revel equally  
In the vibrant spring—the glorious autumn!  
Through the life of summer  
And the death of winter  
Do not we both  
Reach upward unto God?"

—Mabel F. Blakeslee.





# EDITORIAL

## Recreation and the National Parks

THERE is no keener student of public land problems than Colonel Henry S. Graves, of Yale University. His articles on National and State Parks which begin in this number of *AMERICAN FORESTS AND FOREST LIFE* merit wide reading, particularly the current article dealing with National Parks. This is a subject which should be of special interest to the American people, because it involves one of their most treasured possessions. And yet the majority of people probably do not appreciate that we have a serious park problem. As a matter of fact our National Parks are passing through the most critical period in their whole history, and the thing which threatens to topple them from their high position of dignity and distinctiveness is nothing less than the modern rage for outdoor recreation.

While Secretary of the Interior, the late Franklin K. Lane once declared that the National Parks are the playgrounds of the people, and he invited the public to come and enjoy them. This seemed logical. They are the property of the public, and with some minor exceptions they embrace the very best that outdoor America has to offer. But in inviting the people to make the National Parks their playgrounds Mr. Lane certainly had no thought of lowering the standards of dignity and scenic exclusiveness which have characterized our parks from their beginning. Nevertheless the idea that National Parks are areas set apart and administered by Uncle Sam for the principal purpose of providing playgrounds for the public has become so fixed in the minds of many people that it threatens to alter our whole park policy and to destroy park standards which we used to think were safely settled.

Unfortunately Congress has never defined specifically the objects of a National Park, but the history of the parks themselves has provided a sort of unwritten law that they are areas set apart for complete preservation of

natural wonders of such outstanding scenic, scientific and spiritual appeal as to possess national interest and inspiration. With such standards, it is obvious that our National Park system would be complete when it embraced the supreme examples of nature in the United States. But now come the maddening crowds imbued with an idea that a National Park is a great playground where Uncle Sam will pay all the bills and provide recreation a la carte or table d'hote. They would let down the bars of scenic standards and have a system of federal parks reaching into every state. This is a dangerous sentiment. It invites political interlopers. It threatens to set aside standards and principles which have made our National Park system the most outstanding scenic institution in the world, and to convert it into a system made commonplace by areas of inferiority.

Colonel Graves goes directly to the heart of the problem when he says that a decision must be made very soon as to what the guiding principles of the expansion of the parks shall be. A vast system of National Parks established with public recreation as the actuating motive in their selection would, as he points out, result in chaos, not only to National Park standards, but to a coordinated system of public reservations in general. And by the same token, it would jeopardize the very existence of the parks by reserving natural resources so extensive that sooner or later the whole system would succumb to economic pressure. We are unsympathetic with the talk of expanding the system in order to provide, at Uncle Sam's expense, convenient playgrounds for different sections of the country. Colonel Graves asks "Are National Parks to be restricted only to areas of the most commanding natural features which distinguish them from all other forms of public reservations?" By all means yes, and the sooner that policy is fixed by Congress the sooner will our National Parks be rescued from an era of great hazard.

## Shall We Surrender to the Beetles?

AN attempt was made by The American Forestry Association to have included in the Agricultural Appropriation bill for the next fiscal year an increase of \$50,000 for investigation and control of insects affecting forests. It met with little sympathy.

There is no great pall of smoke over the country nor is the sky reddened with miles of flame from the work of the pine bark beetles on the Pacific Coast and in the Rocky Mountain states. There is no known instance of loss of human life on account of the work of these insects.

Their campaign of destruction, which runs into fifteen or twenty million dollars loss every year, is quiet. Except in epidemic infestations where great areas of timber are killed in a single season, there is no suggestion of the spectacular. Must we look to this lack to find the reason for failure in combating this pest, or must we charge it to the monotonous cry for economy in Government expenditure, or to failure of the bureau responsible for insect control, to fight for appropriations it knows are greatly needed? By whatever name we may call this neglect by the Federal Government, the bold fact stands out that in 1924 Federal cooperation in the control of the pine bark beetle in Oregon, ceased because of the exhaustion of Federal appropriations. The work on private land has continued. The slowing up of the work in this region, together with a succession of dry years, has resulted in 4,500,000 acres being infested with pine beetles which threatens to destroy thirty billion feet of standing pine. Nor is the story confined to Oregon. It was estimated in 1924 that the loss from the depredations of this small girdling insect exceeded five billion feet of standing timber annually. Figured at \$3.00 a thousand feet this

would amount to a fifteen million dollar annual damage.

Many of the infested areas occur in the National Forests, Indian reservations or timbered portions of the unreserved Public Domain where control of the pest is a responsibility of proprietorship on the part of the United States. The concern of the private timberland owners perhaps would not be so great if the problem were not incurably cooperative. Lack of control on the Federal areas, as in the case of fire on the timbered portions of the Public Domain, spreads the trouble to well-protected and contiguous private tracts, bringing with it discouragement of private effort. Fifty thousand dollars spent during the next fiscal year would have carried encouragement to private owners, brought to light scientific facts which would improve control methods and given a greater value per dollar to the work done by everybody. An investment of \$50,000 to attack an annual loss of more than \$15,000,000 certainly can not be termed an extravagance, particularly when those familiar with the pine bark beetles are convinced that they *can be controlled*. In the face of this and for the want of a few thousand dollars a year, shall we surrender to the beetles?

## Trial and Error—or Research?

BY two methods man has gained the bulk of his knowledge concerning this complex world in which he finds himself. The first method is the gradual building up of experience through long trial and use and handing down the results by tradition. The second is by systematic and comprehensive attack—planwise and scientific both in its technique and in the analysis of its results. The first is essentially the method of trial and error. The second is essentially the method of research. The first is costly, involving long periods of time, fragmentary and liable to error. The second is economical, far-reaching and dependable.

In the field of forestry a great deal of our lack of fundamental information may be traced to the fact that in the past we have depended too much on the first method and have not been alive to the ultimate necessity for the second. And if in the past the absence of a specific program has contributed to our indifference to forest research, this remains true no longer since the publication, by the Committee of the Washington Section of the Society of American Foresters, of "A National Program of Forest Research."

More extended comment on this publication is made elsewhere in the present issue. It is a comprehensive and perhaps epoch-making report. It is a challenge to every forester since it says in effect, "Here is your forest problem. Here, so far as we are able to tell, is its solution. That solution lies in research. It will cost money, it will require trained men. It will take vision but the prizes to be gained are invaluable since they involve the perpetuation and wise use of a fundamental commodity without

which as a civilized nation we cannot get along. What are you going to do?"

Every one who has worked in the field of forestry knows that always there has been too much prophesying and forecasting and too few supporting fundamental data. In the words of the report, "The American forestry profession is under a definite obligation to see that some national program of materially strengthened research organizations is put through. The public has a right to look to the profession for advice and leadership. This leadership should come from consulting foresters, from those in the industries and the forest schools, as well as from those in the public service. Unless this leadership is forthcoming, foresters will fail in an essential part of the public service which the very nature of their profession obligates them to perform.

"We have now reached the stage when the situation calls unmistakably for the development of forest research as a big national undertaking, on a scale commensurate with the movement to acquire national and other public forests; with the drive to place our entire forest area under protection against fire; with the effort to bring about the practice of forestry on privately owned lands; with the development of agricultural research in the United States."

In defining this complex problem so clearly and in suggesting remedies so concretely the Committee has accomplished a herculean task. It has done its share and more. It now lies with every member of the profession of forestry—yes, with every one who uses wood in his daily life and that means some hundred and ten million of us—to help turn this program into performance.

# White Pine Still King in the Empire State

JOSHUA A. COPE

**T**HIS month, from the 8th to the 13th, Farmers' Week is being held at the New York State College of Agriculture at Cornell. It is the plan of the Forestry Faculty to exhibit a woodlot scene in an effort to bring before land owners the necessity and wisdom of caring for this form of forest property.

At the last Farmers' Week, stress was laid on the importance of white pine to the Empire State and a large exhibit room was entirely given over to a display, illustrating the life history, planting, protection, management and uses of this valuable species.

A sign proclaimed in 4-inch letters "King White Pine—the fastest growing commercial species native to the State."

In the life history group, winged seeds tried in vain to detach themselves from black threads of various lengths which connected them to a pine cone hanging from a pine bough. A carefully concealed fan supplied the breeze that kept the seeds tugging at their invisible

leashes. On the forest floor beneath, one winged seed had fallen right on the dotted line of a promise to pay note so as to give legality to the legend which ran "Fifty years from date I promise to pay to any farmer one large White Pine—many dollars. Due February 8, 1976."

Under "uses" lumber grades of white pine were shown all the way from box boards at \$40.00 up to "C Selects" at \$180.00 per thousand board feet. To impress visitors with the durability of the species—something that can't be said of most kings nowadays—the department secured a white pine fence rail, that from authenticated records had been in actual service for 99 years and 9 months.

The open grown pine of the pasture came in for display as a horrible example with its large side limbs, as contrasted with a pine log of the same size grown in a crowded stand. An obliging saw had revealed the inner parts of both logs and the tiny interior knots of the



HARVEST OF WHITE PINE

A remarkable exhibit at the New York State College of Agriculture. Here are grades of lumber from second growth, lumber from open and close-grown trees, and examples of close utilization in pail and tub stock.

tree from the crowded stand were in striking contrast with the huge knots from the center to circumference of the pasture pine.

Can white pine live in shade? The exhibit material indicated that while it could live, it certainly couldn't do much growing. Three specimens were on display, all about the same size and height. Number one had spent its entire life of 34 years struggling along under the shade of big hardwoods. Number two had struggled along under the same handicap for almost a score of years and then a forester's kindly ax had given its leader a place in the sun and it had showed its appreciation by stretching its average annual height growth to a foot as compared with two or three inches before. The total age was 25 years. Number three had never been shaded from the start and had achieved this twelve feet in 10 years.

The two prominent enemies of the "King"—the rust and the weevil were not overlooked. A splendid exhibit, centered around a large gooseberry bush in full leaf and flower, and went by easy stages from the tiny seedling white pine directly adjacent which had been killed outright—on up through others a little more remote which were rapidly succumbing, to the large trees of 6 to 8 inches whose trunks showed the ravages of the disease.

The weevil actually no longer than the smallest letter on this page, became a snouted, ferocious appearing beast by means of a bifocal high powered microscope.

All told—1,450 people came to see and remained to take off their hats.

They shared, at least in part, the feeling that it is not yet time to dethrone this "King."

## Planning for Forest Perpetuation

(Continued from page 86)

be restored to the economic and industrial life of the state. To accomplish that end it is necessary that a system of taxation be devised for such lands, which will encourage the growth of new and immature forests on lands chiefly valuable for that purpose, and which will enable the owners thereof to bear the burden of taxation on such lands over the period of years necessary to produce forests of commercial value. Therefore the state . . . through its legislature, hereby exercising its police and sovereign power, declares and enacts that all logged-off lands and all unforested lands chiefly valuable for the production and growth of forests and all lands growing immature forests and forests of no commercial value shall not be assessed or taxed at a rate which will discourage or hamper the growth of forests on such lands, but shall be assessed and taxed at such rate and in such manner that owners of such lands may be encouraged to reforest, plant, protect and grow forests of commercial value on such lands."

A State Forest Board is to be created which shall have the power and whose duty it shall be to classify lands for the purposes of this act, to value them for purposes of assessment and taxation, and a yield tax is provided to be paid at the time the matured forest is removed. This state board is also given power to make orders, rules and regulations and to enforce them in order that the purposes of the act may be carried into effect.

So the features of the new plan are a small continuing land tax while the crop is growing and a yield tax when it is harvested. Owners of lands which may come under this act are satisfied in the main with the arrangement and are supporting it almost unanimously.

Taxes lost by such reclassification would be more

than offset by the increased stability of the lumber industry, which in the state of Washington, for instance, provides 65 per cent of the total payroll of the commonwealth. Taxes will be lost anyway if logged-off lands continue to revert to the counties now taxing them, as they inevitably must unless this or a similar plan is adopted. If a state ownership plan should be adopted, whereby all logged-off lands would be acquired by the state as rapidly as they are cut over, these lands would still go off the taxrolls and in addition it would cost each of the states something like \$3,000,000 a year for the next sixty years before there could be a dollar of return. And all of this would have to be carried for that long period of time by the taxpayers.

It has been apparent to students of the question in these states for a long time that the salvation of the forests is not in the Federal Forest Service and the National Forests, but in the combined use of all lands capable of reforestation, and in the cooperation of all forces to that end.

The lumberman's interest is greater than that of any other class or individual. The interest of the Pacific Coast states is greater than the interest of the Middle West or the Atlantic Coast. The lumber industry is the leading industry of this coast. There would be no prosperity here without it, no business, no population worth while, no commerce and no industry. This is particularly true of Oregon and Washington. Two-thirds of all there is of business and industry would be destroyed in the states of Oregon and Washington if the forests were to be wiped out. But the forests will not disappear if this three-party cooperative plan is adopted. They will remain perpetually. It is the conviction of all who have given the problem their earnest study that this is a practical plan for forest perpetuation.



## Mother, Please

Maybe it is just a fancy  
But I often think I hear  
Gentle voices in the woodland  
Though no other soul be near—  
Mothers speaking to their children,  
Children saying, "Mother, please,"  
Ask about the world they live in  
And about their neighbor trees:

"Mother, please, why must our neighbors  
Be so naked in the storm?—  
We are always clothed in winter  
In our garments soft and warm,  
But the hickories and walnuts,  
Chestnuts, beeches and the oaks  
Are so thinly clad! they shiver  
In the storm, without their cloaks."

"I commend you, little daughter,  
For the sympathy you show  
For our friends who are less favored  
Than the firs when north winds blow;  
When they see their little children  
Falling from each leafy stem  
They drop down their pretty dresses  
For a cover, over them.

"Children of our race are gifted  
Like the birds you see, for flight  
And can sail out o'er the tree tops  
For a good place to alight,  
But the shellbarks and the acorns  
Fall on ground that's hard and bare  
And lie naked, and in danger  
From the prowlers lurking there;

"Then each mother's heart is anxious  
And she drops her pretty gown,  
Saving naught for her own comfort  
Either red, or gold, or brown;  
Forest mothers know privation  
And in tatters brave the storm  
Gladly suffering that their children  
May be safe, and snug, and warm."

"Thank you, Mother, for this lesson—  
When the pheebe built her nest  
I remember how she lined it  
With the feathers from her breast;—  
You have taught me why our neighbors  
Are so naked in the storm,—  
For they want their little children  
To be safe, and snug and warm."

—LEANDER GOETZ





### Reason Enough

Harold was late to Sunday school and explained to the minister that he was delayed because he expected to go fishing but his father wouldn't let him.

"That's the sort of a father to have," said the minister. "And I'll venture he explained the reason why you should not go."

"Yes, sir, he said there wasn't enough bait for two."—*West Virginia Game and Fish Conservationist*.

### Said the Ant to the Elephant, "Quit Yer Shovin'"

"Insects," writes a naturalist, "have emotions; they experience joy, remorse, etc." Remorse, eh? There's an idea in that. An ant that has misbehaved probably feels pretty small.—*Farm and Fireside*.

### Sympathy of Department Is Extended

Recently the widow of a farmer, striving to keep the farm going, had some difficulty with her hens, and wrote the following letter to the department of agriculture:

"Something is wrong with my chickens. Every morning when I come out, I find two or three lying on the ground, cold and stiff, with their feet in the air. Can you tell me what is the matter?"

After a little while she received the following letter from the department:

"Dear Madam: Your chickens are dead."—*Southern Agriculturist*.

### Fingerprints Gladly Furnished

A resident of Takoma Park, Md., wrote the clerk of the Circuit Court for a hunting license, saying:

"For and in consideration of the inclosed check for \$5.10, please send me a State hunting license. I am forty-seven years old and a poor shot; have brown eyes, but am near-sighted; and brown hair, but it is now gray; am 5 feet 10½ inches high if I stand up straight, but don't; weigh 175 pounds when fat, and am; live in Takoma Park, but am trying to sell out; am of good moral character, but was in jail once for contempt of court



### Automatic Flapjacks

Dr. Shafer in his last trip with the Club became so lazy that he put popcorn in the hot cake batter so he would not have to flip them.—*Wasatch Rambler*.

The license was forwarded.—*The Los Angeles Times*.

### "Long Distance Snapping"

"Tucson Girl Bitten by Dog in Ft. Worth."—*Headline in Arizona paper*.

### Hoping You Are the Same

One of our friends from New Hampshire drops us this cheering note just before Christmas:

"Dear Sirs:

"In answer to your pamphlet received last week, I should say that you have been wrongly informed as to my status in land ownership in this town. I do not own any forest land or rabbit farms for several reasons, first, the system of the forest land taxation is wrong. The jazzy style of logging operation is also wrong, and the suppressing of hunting and trapping on one's own land whether it is farm or wild land is wrong, too; if I could have things my own way in this state there would be less bushes growing on our farms and more old growth timber on the woodlot. Hereabout it is getting somewhat difficult to distinguish a grass farm from a rabbit farm; gentlemen, do not forget this in your dreams that as long as those Eastern merryandrews can get some gas they would rather raise the old harry on our long and narrow weedless farms than raise grain and crank a fanning mill, and the trucks are used to transport scrubby beanpoles for making hootch, and I can't see any remedies in the near future for the improvement of forest land as long as the forest parasites and barnacles exist. Sirs, I am sorry, 'nothing doing here'. Yours truly, —"



### Crazy With the Heat

French foresters are said to have attempted to use eucalyptus poles in establishing telephone lines in Northern Africa. The story goes that the line was completed and the first conversation cut short rather mysteriously. Examination disclosed that the hot sun had so warped the poles that the wires had snapped, draping themselves in fantastic forms over the landscape.

# The Thorndike Oak

**T**HE Thorndike Oak, standing almost in the center of Bowdoin College campus, is an old acquaintance to many readers of *AMERICAN FORESTS AND FOREST LIFE*. It bears the name of one of the first eight students to enter Bowdoin in 1802. George Thorn-

He suddenly snatched a drumstick from a four-year-old boy who had been marching up and down beating his little drum, with it dug a hole in the ground, and placed in the hole the acorn. "There," he probably said, "that will grow and will perpetuate my name long after you and your individual fames have been forgotten."

The acorn sprouted the following Spring. Its growth must have been carefully watched, for the next year it was transplanted to the garden at the rear of the President's house, now practically the center of the Bowdoin campus, so that it almost seems as though the college has grown up around the tree.

Of the eight students matriculated in 1802, one was lost at sea the following year, the other seven graduating in 1806. Six of them lived to succeed in their different fields, but the seventh, George Thorndike, died in Russia soon after graduation.

James McKeen, the small boy whose drumstick served as the planting tool, later graduated from Bowdoin, became a member of the Faculty of the Maine Medical School, and practiced his profession in Topsham. In



**THE SURGICAL WORK IN PROGRESS**

After the old rotting wood was dug from the heart of the tree, and before the cavity was filled, about two dozen rods, embedded in the sound wood at each side of the cavity, were put into position, and this made the tree much stronger than it had been before.

dike only lived to be twenty-one years old, so it is hardly likely that his name has been remembered for some remarkable deed or discovery. Yet a hundred and twenty-four-year-old living monument bears his name.

In 1802 Bowdoin College inaugurated Joseph McKeen as its first president. The audience was made up, in part, of eight young men, comprising the whole student body, an ambitious group and anxious to some day make Bowdoin proud of her sons. The inauguration speeches served to fire their ambitions even more. One among them, less egotistic, perhaps, than the rest, or uninterested in the potential successes of his colleagues, stood aside twisting in his hands an oak twig found among the debris of the decorations and still having on it an acorn.



**WHEN THE TREE DOCTORS WERE THROUGH**

The veteran tree, dear to the hearts of Bowdoin men, has taken a new lease on life. In addition to the large cavity at the base, four cavities may be seen in the upper limbs which were also filled.



his youth the tale of the planting was told and retold, so that it remained fresh in his mind, and in his old age he passed it on to some Bowdoin men who wrote it down in their publication, the *Bowdoin Quill*, of November, 1899.

Although of sturdy stock, the red oak family, after a century of living, the tree was attacked by fungus spores, and seemed for a time to be doomed. But during the years the Thorndike Oak was growing and aging a new profession came into its own,—forestry,—and through

it the tree was given a new lease on life. A student of the class of 1902 repaired the old tree. The rotted portions were chiselled out, the cavity filled with cement, and the growing cells just under the bark began working diligently to cover the scar. But the disease has spread, and another operation must be performed. This is being undertaken now, and Bowdoin classes, for years to come, through the help of modern science, may expect to hear and take pride in the story of the Thorndike Oak.

## How Fires Were Made in Ye Olden Days

(Continued from page 74)

pliers. By this means the bulb was broken, the acid released, and subsequent chemical action caused the ignition of the paper.

The first really practical lucifer match, however, was invented by John Walker, of Stockton-on-Tees, in 1827, and by him named after Sir William Congreve of rocket fame. It consisted of a splint of wood, first tipped with sulphur and then with a chlorate mixture. These matches were drawn rapidly through a piece of folded sandpaper to ignite them. It is curious to note that a tin box containing seven boxes of them, together with the necessary

bit of sandpaper, cost one shilling.

Finally, after endless experimenting, inspired by handsome prizes offered by America, England and other countries, the non-phosphorus safety match was brought into being, putting the top stone, as it were, upon man's monumental struggle with the problem of striking a light.

And in a sense it is a curious commentary on the old world's slowness of inventive genius that the first practical match should have been made less than a century ago.

## Progress in British Columbia

(Continued from page 71)

carried to the public through the channels of extension lectures by members of the University staff, by the preparation of text books for use in the schools, by essay competitions, motion picture and lantern slide lectures, and by the traveling forestry exhibit car of the Canadian Forestry Association.

Newspaper articles and advertisements, cartoon services, road signs and various posters, stickers and pamphlets are all used to good effect, and the personnel of the Branch is constantly on the job putting over the message on every occasion. The result is that an enlightened public opinion on the subject of forestry is becoming an actuality.

The mile posts on the trail are being passed. There are many more ahead to be established and left behind, but the work during the past twelve and a half years since Mr. Price's article was written has built a sure foundation from which to carry on. What the next decade will bring forth none can tell, but we may be sure that the progress of forestry in British Columbia will be accelerated by the increased demands on the vast, though not inexhaustible stands of timber, by the increased knowledge derived from well directed research and the broadening realization by the public of their dependence on the forests for most of the blessings of modern civilization.

## Foxy Livestock

(Continued from page 82)

cattleman or horse fancier follows when he picks breeding stock. Then he must buy his stock and be able to mate, feed and handle them in a businesslike manner.

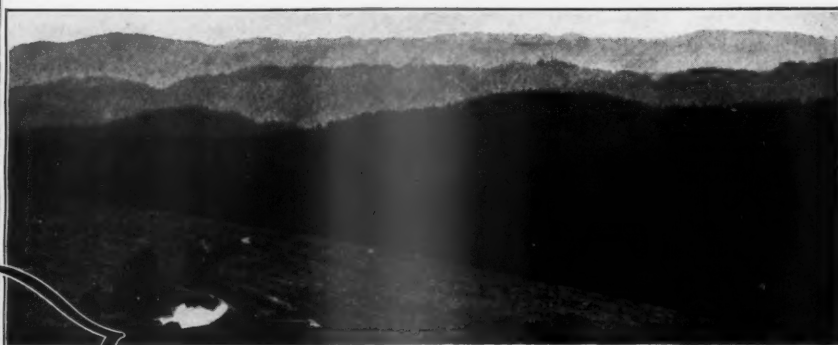
From such a start the small grower of purebred foxes can sell breeding stock to those who will need them for bringing new blood into the herds. He will be in just the same position as the man who raises a few purebred dogs, cats, chickens, horses, or any other quality livestock. But there is still a last hurdle for this grower of breeders to take before he can realize through sales what his stock is worth. He must build up a reputation for high class breeders among the growers.

It all simmers down to this after the speculative stage is laid away in mothballs as a thing of the past: fox

farming of today is emerging into the field of a livestock industry. It is a question of production, economically; marketing of products in quantity or for special quality in small lots at higher prices; of breeding for better body conformation, pelt quality, stamina, and all those factors which go to make up well-bred livestock of any kind.

The man who will put his money in a sound, well-managed fox farm company which has good, experienced management can expect to get good interest on his money, and he can be as sure of making a reasonable income from it as he can from any business with equal work and equal capital.





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### Forestry is practical in the Douglas Fir region

THE growing and marketing of trees at a profit is the ultimate aim of forestry. Other advantages of forestry practice follow as a natural consequence — stream flow regulation, protection for fish and game, enhanced recreational advantages.

Last year, in 1926, less than 1½ per cent of the total regrowth was destroyed by fire in Oregon and Washington—and this during the worst fire season in many years. More than \$1,879,000 were expended by all agencies in these states for fire prevention and suppression. When the federal government meets its full proportionate share of the cost this loss can be reduced even more.

Trees grow rapidly in the Douglas Fir region, that fertile stretch of territory between the Cascade Mountains and Pacific Ocean. Thirty, forty, fifty years will produce timber of high merchantable value. Nowhere is forestry more practical.

As the market for Douglas Fir expands, forestry principles will be more intensively applied. As the uses of Douglas Fir increase, the opportunities for forestry grow. The Douglas Fir region will always supply lumber, because here forestry principles are being applied before the forests have vanished. West Coast Lumber Bureau. 5560JJ Stuart Building, Seattle, Washington.

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of the Pacific Northwest  
Photos by Cress, Seattle

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# AROUND THE STATES

## WITH

### THE AMERICAN FORESTRY ASSOCIATION

#### Washington Leads in 1925 Lumber Production

From data collected at the census of manufacturers taken in 1926, the Department of Commerce announces the production of lumber, lath and shingles in the United States in 1925 as follows: Lumber, 38,338,641 thousand feet, board measure, an increase of 6.7 per cent as compared with 35,930,986 thousand feet in 1924; lath, 3,161,137 thousand, an increase of 6.8 per cent as compared with 2,961,200 thousand in 1924; and shingles, 7,350,422 thousands, an increase of 7.1 per cent as compared with 6,862,385 thousands in 1924.

Of the 46 states reporting the production of lumber for 1925, 24 showed increases and 22 decreases as compared with the output for 1924, the greatest amount of increase being indicated for Washington, where the lumber cut of more than 7,000,000 thousand feet was greater than that reported by any State at any preceding census. Twelve other States show a production of more than 1,000,000 thousand feet for both 1925 and 1924.

Seven kinds of wood

contributed more than 1,000,000 thousand feet each to the total cut for each of the two years. The predominating woods, as for previous years, were yellow pine and

Douglas fir, which contributed 34.5 per cent and 21.3 per cent, respectively, of the total production for 1925, as against 34.7 per cent and 20.8 per cent, respectively, of that for 1924. Only one of the seven woods of chief importance, white pine—showed a decrease for 1925 as compared with 1924.

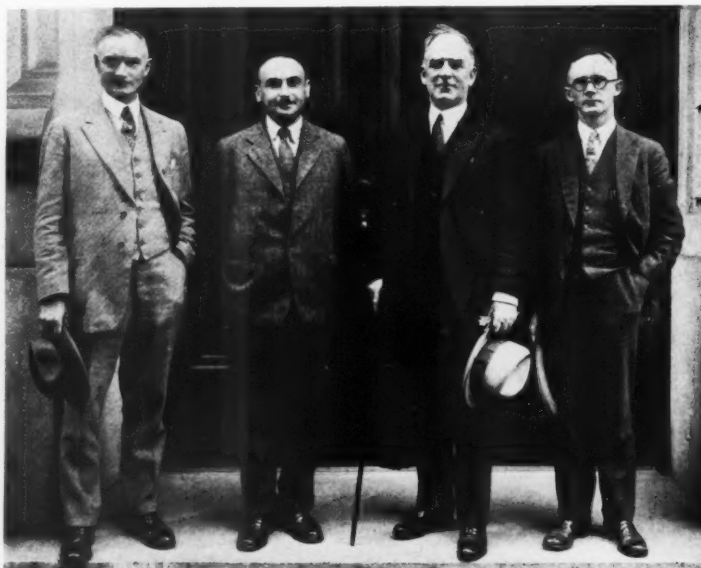
Summary statistics in regard to wage earners, wages, cost of materials, and horsepower will be published later.

#### The California Forest Experiment Station Opens

The formal opening of the California Forest Experiment Station was celebrated with very simple ceremonies.

President W. W. Campbell of the University of California, Dean E. D. Merrill, of the School of Agriculture, Dr. A. W. Sampson, representing the Forestry School, and E. I. Kotok, the new director, formally posed to celebrate the opening of the station at Hilgard Hall on the University of California's campus.

The Secretary of Agriculture, in selecting the University of California as the headquarters for this new station, was particularly impressed with the opportunities offered by the correlated work being carried on by the University.



AT THE OPENING OF THE STATION

Reading from left to right: Dr. A. W. Sampson, Professor of Forestry of the University of California; Edward I. Kotok, Director of the new California Forest Experiment Station; William Wallace Campbell, President of the University and Dean Elmer D. Merrill, of the College of Agriculture.

#### Professor Leigh Young Heads Michigan Conservation Commission

Professor Leigh J. Young of the Forestry Department of the University of Michigan was appointed December 30, 1926, by Governor-elect Green of Michigan, as the new head of the State Conservation Department. He succeeds John Baird of Saginaw who has been director since the department was organized in 1921. Mr. Baird resigned on January 1, 1927.

Professor Young's appointment is in line with Governor Green's campaign pledge that he would select a trained man who was acceptable to the sportsmen's and conservation groups



### Douglas Fir

Douglas Fir is the Nation's most important structural wood judged on quality, strength, serviceability and supply. 22% of all the lumber produced in this country is Douglas Fir. If you are unfamiliar with Douglas Fir timbers send for the Weyerhaeuser book "Structural Timbers of Douglas Fir." We will include a copy of U. S. Forest Products Laboratory "Technical Note No. 201" which shows the comparative strength values of the various structural woods.



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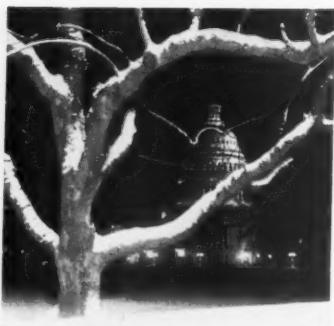
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in the state, and it is understood that the appointment was made as the result of a meeting with representatives of these organizations. The new Commissioner was graduated from the University of Michigan in 1911 and has been a member of their faculty since that time. It is understood that he is particularly interested in a more vigorous policy of land acquisition for the state and more prompt reforestation.



### The Tree of Yesterday

By CHARLES G. DUNWOODY

I am the tree of yesterday.

I stand, a useless thing.

My charred and blackened sides bear witness to the carelessness of man who needed me to build his home, his table and his chair. I might have been the cradle that rocked his babe to sleep.

The brook that flowed beneath my spreading boughs is dry.

No longer does the fisherman seek my friendly shade. The hunter shuns me from afar.

I am part of a great desolation; the victim of man's thoughtlessness.

I am the tree of yesterday.

WHAT OF THE TREE OF  
TOMORROW?

### New Woodgate Rust Menace to Scotch Pines

Scientists of the United States Department of Agriculture and the New York State Conservation Commission have discovered evidences of the very dangerous gall-rust disease of pine trees in two distinct localities in New York State. An emergency study was made last year of the disease but nothing definite has yet been discovered about it. The disease, so far, has been found for a certainty only on the Scotch pine.

For the want of a better name, this disease has been called the Woodgate rust from the name of the town in New York where it was first observed. It is known to be a *Peridermium* rust, but its species has not been identified.

This rust can apparently pass directly from pine to pine, without an alternate stage on some other plant, as in the case of white-pine blister rust. In this particular it probably will be more difficult to control than the white-pine blister rust which is halted by destroying the alternate host.

### Mining Congress Has Reforestation Committee

The National Standardization Division of the American Mining Congress has recently appointed J. M. Sloan as a member of the Sub-Committee on Reforestation, of the Committee on Coal Mine Timbering. Mr. Sloan is Secretary of the Anthracite Forest Protective Association.

A. C. Silvius, who is forester for the Philadelphia & Reading Coal and Iron Company, is chairman of this sub-committee.

### Cattlemen Differ on Range Burning Benefit

All cattlemen do not agree that burning the woods is a benefit to their business, says the *Tennessee Patriot* Forest News.

A Lewis County stockman states that he would not practice range burning even though it were true that spring fires result in a much earlier range. Years of experience have taught him that cattle will remain on the unburned range almost six weeks longer in the fall than they will on the range where spring burning is practiced.

Where cattle have the choice of grazing on burned or unburned range, they invariably drift to the unburned areas and remain there during the hot, dry summer months, according to the observation of a Wayne County cattleman who believes that repeated burning of the range ruins it.

### Reforestation Cup Won by Sportsmen

The Cortland County Sportsmen's Association, Cortland, New York, which was responsible for the planting of 507,000 trees during 1926, won the silver reforestation cup offered by former Conservation Commissioner James S. Whipple to the

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organized game clubs of New York. The presentation was made at the annual meeting of the New York State Fish, Game and Forest League held in Utica.

This cup was given by Mr. Whipple for the purpose of stimulating interest in the reforestation of idle lands in the state. As a consequence, great interest developed among sportsmen and considerable idle land has been transformed into working areas growing tree crops, and likewise furnishing some cover for certain kinds of game and protection for the watersheds of small streams.

#### Careless Ones Pay for Fires

The sum of \$13,192.29 was collected from people responsible for forest fires throughout the State of Pennsylvania during 1926, according to the Bureau of Forest Protection. The money collected covers the cost of extinguishing the fires. The receipts during the last two months totaled close to \$1,200.

#### New Jersey State Forest Additions

New Jersey has added through purchase, since last July, 1,295 acres of forest lands to their State Forests, according to the New Jersey Forestry News bulletin.

The James Black tract of 520 acres and the Hollingshead tract of 15 acres were added to the Lebanon State Forest and the Bass River State Forest was enlarged to the 107-acre Bispham tract. The Stokes State Forest received a total of 653 acres, 147 acres from the Henry Steffens tract, 20 acres from the Asher Snook tract, and 100 acres from the Howell tract. Condemnation proceedings have also been started on three tracts for inclusion in the Stokes State Forest.

#### Half Million Acres to Be Added to National Forests

On January 8, the National Forest Reservation Commission authorized additions by purchase to the eastern National Forests amounting to 35,334 acres, bringing the total area being purchased in the Eastern States to 2,805,537 acres.

A further action of the Commission at this meeting was authorizing the extension of the Monongahela National Forest Purchase Unit in West Virginia on the headwaters of the Potomac River so as to include an additional area of about 80,000 acres. The present gross area of this unit is 735,943 acres within which purchase has been authorized of 189,520 acres, or about 40 per cent of the gross area which is available for purchase, the remaining lands being unsuited for National Forest purposes. The purchase of no land was authorized in the addition to the unit. This addition, which is located in Grant and Pendleton counties, West Virginia, is on the south branch of the Potomac River. Its addition to the National Forest, according to W. W. Ashe, Secretary of the Commission, will insure further protection to the water

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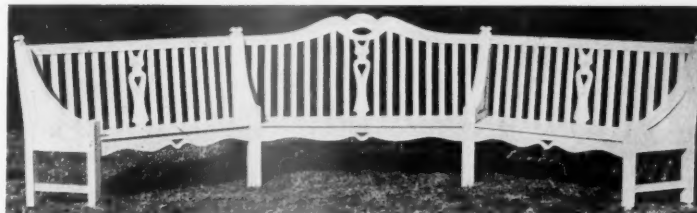
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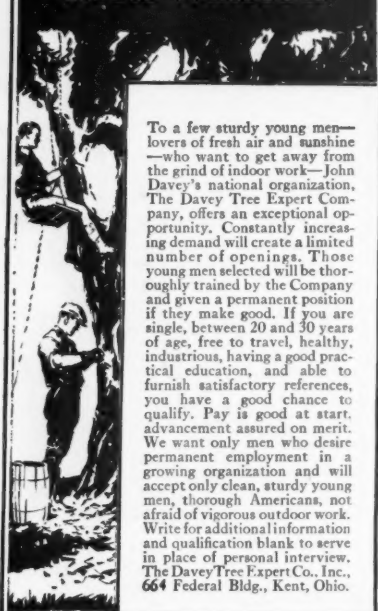
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Clip the blank on page 124 and make it count for a member.

## Young outdoor men wanted



To a few sturdy young men—lovers of fresh air and sunshine—who want to get away from the grind of indoor work—John Davey's national organization, The Davey Tree Expert Company, offers an exceptional opportunity. Constantly increasing demand will create a limited number of openings. Those young men selected will be thoroughly trained by the Company and given a permanent position if they make good. If you are single, between 20 and 30 years of age, free to travel, healthy, industrious, having a good practical education, and able to furnish satisfactory references, you have a good chance to qualify. Pay is good at start, advancement assured on merit. We want only men who desire permanent employment in a growing organization and will accept only clean, sturdy young men, thorough Americans, not afraid of vigorous outdoor work. Write for additional information and qualification blank to serve in place of personal interview. The Davey Tree Expert Co., Inc., 664 Federal Bldg., Kent, Ohio.

supply of Washington City and will be of value in connection with the probable development of the Potomac River for water power purposes as contemplated at Great Falls with storage reservoirs upon the upper headwaters. This area on account of its scenic attractions also possesses recreational possibilities, and from the point of view of timber production, will be a valuable addition to the forest as well as affording additional protection to the Potomac River watershed. This addition has been urged by Representative Frank L. Bowman, of the Second Congressional District of West Virginia, State Geologist White and other West Virginians.

The lands authorized for purchase by the Commission consist of 1698 acres in Augusta, Bath, Rockingham and Nelson counties, Virginia; 1415 acres in Carter and Monroe counties, Tennessee; 302 acres in Cherokee and Macon counties, North Carolina; 630 acres in Oconee county, South Carolina; 3384 acres in Union, Towns, Lumpkin, White, Rabun and Habersham counties, Georgia; 4957 acres in Stone, Baxter, Franklin and Crawford counties, Arkansas; 1762 acres in Lake and St. Louis counties, Minnesota; 4816 acres chiefly in Randolph, Tucker and Pocahontas counties, West Virginia. This brings the area of lands being acquired in West Virginia to 194,336 acres.

In Pennsylvania the purchase was authorized of 15,131 acres located upon the watershed of the Allegheny River, largely in Elk, Warren and Forest counties, thus increasing the area in that State under the control of the Federal Government to 259,117 acres. In Oxford county, Maine, the purchase of 469 acres was approved, bringing the total area in the White Mountains of Maine and New Hampshire to 465,207 acres protecting the headwaters of important New England streams and within the Presidential Range of which Mt. Washington is the center, and the noted hotels and recreational regions of New England.

The Commission likewise recommended to the President additions totalling 430,457 acres to Western National Forests from the Public Domain: 224,257 acres to the Missoula and Helena National Forests of Montana; 137,480 acres to the Idaho, Sawtooth and Challis National Forests in Idaho; 67,000 acres to the Wyoming National Forest in the State of that name; 1720 acres to the Colville National Forest of Washington.

### Governor Trumbull Urges Reforestation on Connecticut Legislature

Two extracts from Governor Trumbull's message to the Connecticut Legislature early in January reflect his interest in reforestation and roadside tree planting. The quotations follow:

"It may be assumed that practically

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every citizen of the State of Connecticut appreciates the importance of strict conservation measures. Our forests seem to furnish the key to the recovery and protection of those natural resources which have been so recklessly wasted in the past. It has been estimated that more than one-third of the area of the State is uncultivated, and that there are four hundred thousand acres of such land more today than there were one hundred years ago, due to the concentration of population into the valleys where large industrial centers have flourished.

"This gradual stripping of the uplands presents an important problem, and it seems to be a wise economic policy to have the State purchase, at reasonable prices, large areas of land which will, in time, produce marketable timber, protect to a large extent our supply of fresh water by holding it in check and equalizing the run-off, furnish cover and food for our game and insectivorous birds, and prove a boon to an increasingly large number of people who are rapidly learning the benefits that accrue from wholesome outdoor recreation. The program of reforestation is worthy of your support and merits financial assistance to accomplish its effectiveness."

\* \* \* \* \*

"It is readily recognized that the Connecticut highways and the scenic landscape are an asset to the State. Due to considerable reconstruction and relocation of highways, it has been necessary, in some instances, to remove considerable vegetation and tree growth along our thoroughfares. The Highway Commissioner has formulated a program of beautifying our roads by the planting of shade trees, shrubs and vegetation. It seems to me that legislation establishing a definite policy and providing, at least in the beginning, a specific appropriation for the Highway Commissioner to carry on the policy of the program already inaugurated, is needed. In the past, this program has been carried on without the benefit of specific appropriation. I heartily commend it to your consideration."

#### Primitive Area Set Aside in California

Attracting keen scientific interest as the only reserve of its kind in the United States lies an area approximating seven square miles in the High Sierra country of Yosemite National Park, California. This has just been set aside as a complete and perpetual reservation in which the flora and fauna will always be left in their primitive state. All domestic animals, camping and fishing will be excluded, and admission will be by special permit only.

This perpetual reserve will be maintained for the express purpose of affording an

opportunity of studying plants, animals and geologic and other natural features under primitive conditions.

#### Lumber Company Appoints Forester

The Sugar Pine Lumber Company of Fresno, California announces the appointment of Burnett Sanford, formerly of the United States Forest Service, as forester for the company. Mr. Sanford will devote his time to reforestation and fire prevention in the logging regions. He plans to co-operate with the State Forester in carrying out the smoking rules of the dry months through the company's lands.

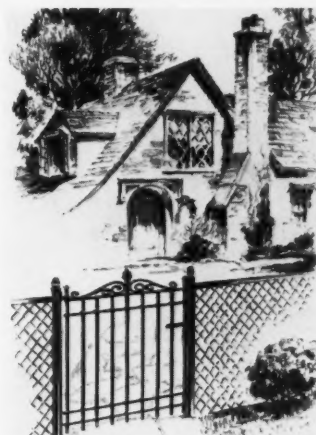
The Sugar Pine Lumber Company's decision to appoint a forester is the direct outcome of the passage of the forestry tax amendment which exempts growing trees from taxation in California and which is doing so much to stimulate reforestation throughout the state.

#### Wood Utilization Report Ready

The first report of the Construction Subcommittee of the National Committee on Wood Utilization on "The Marketing of Short-Length Lumber," has just been published by the Department of Commerce. The main function of this bulletin is educational.

Secretary Herbert Hoover points out in a foreword that in building and construction, as in nearly every branch of other lumber-consuming industries, there is a definite use for lumber of short lengths. At present, however, short lengths are seldom purchased as such, being cut from long lengths at the point of consumption which leaves a large quantity of short-length lumber of good quality which it is not possible to utilize at the mills.

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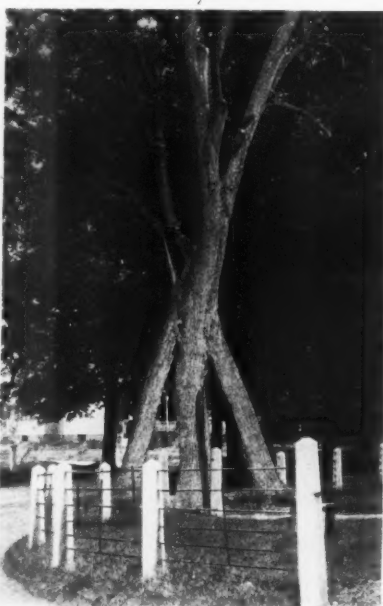
### Southern Forestry Advisory Council Formed

The formation of a Forestry Advisory Council, composed of State Foresters from six Southern States, has just been announced by Mr. O. H. L. Wernicke, president of the Pine Institute of America. The members of the council are Page S. Bunker of Alabama; W. R. B. Hine of Louisiana; R. L. Hogue of Mississippi; J. S. Holmes of North Carolina; B. M. Lufburrow of Georgia and E. O. Sieck of Texas.

This council will give the State Foresters in the turpentine pine belt an opportunity for closer contact with one another and the agencies working with the Pine Institute in its campaign to stamp out forest fires. Reports of research results and other useful information will be given to this Council by the Institute so that each State Forester may direct the work in his own state which will lead to the restocking of waste lands with fast-growing pines.

### A Tree on Stilts

THIS very interesting tree, or group of trees, as some call it, was photographed by Mr. Roy G. Pierce, Associate Pathologist of the Bureau of Plant Industry of the United States Depart-



UNUSUAL NATURAL GRAFT OF ELM

ment of Agriculture, on a visit to Massachusetts. Mr. Pierce says that in front of the trees there is a sign which reads: "These trees were set out about 1830 by Eleazar Carver, who built this house." The trees have formed a natural graft and make a very striking picture as seen from the roadside. They are growing in the town of Bridgewater, in Plymouth County, Massachusetts.

### Experiment Station Starts Tree Research

The Pennsylvania State College announces that Arthur C. McIntyre, a government forest research specialist, has joined the staff of their agricultural experiment station and will carry on research work in reforestation problems.

Millions of acres of worthless forest land in the state, including scrub-oak land, land covered with weed trees that will never grow to tree size and lands that have been repeatedly burned so that they are covered with nothing but bracken and weeds, make scientific attention imperative. Many farm woodlands, through fire and ruthless cutting, have won the name of idle lands. One of the problems Mr. McIntyre will attempt to solve is how these great areas of land, formerly covered with thrifty tree growth, can be converted to profitable growing forests in an economical and practical manner.

Mr. McIntyre is a graduate forester of the Michigan State College. He has been carrying on similar investigations for the United States Forest Service at the Southwestern Forest Experiment Station. He enters his new position early in January with the highest recommendations of government foresters and of the United States Forest Service.

### New Park Appointee for Louisiana

During the session of the Louisiana Legislature a bill was passed adding a member to the Forestry Governing Board to represent park work. Governor Simpson has just appointed Mrs. A. A. Anding, of Opelousas, to fill this position on the Board. Mrs. Anding has had charge of work for the Evangeline Memorial Park and was successful in having the bill creating it passed, which carries an appropriation of \$10,000.

### Squirrels Help Redwood Reforestation

Squirrels are assisting reforestation in Humboldt County, California, by cutting cones from the redwood trees. One giant tree adjacent to the Redwood Highway has yielded almost 300 pounds of cones this year, all of which were cut from the tree by squirrels. Forester Corbitt of the Pacific Lumber Company collected these at weekly intervals before the squirrels could hide them.

These cones average a little over an inch in length and half an inch in width and when exposed to warm, dry air in a kiln for 24 hours each cone releases about 130 tiny seeds. It requires about 100,000 of these red-brown grains to make a pound. Six pounds of cones from this giant tree produced one pound of seed, or 5,000,000 seeds. Making full allowance for the large number of seeds that will not grow, the surviving ones will probably be sufficient to plant up 500 acres of cutover redwood land.



# De Woods of Pine

By WARREN NICKE

An old darky singin' in de woods of pine  
A-workin' de trees for turpentine:  
"My Luck, hit grows with the Piney Wood,  
And while pines grow my luck stays good—  
Food in de kitchen and times ain't hard—  
When a man works out in God's front  
yard."

## CHORUS

Payday's comin' while de pine trees grow,  
Hit's the surest thing dat a man can know.  
De woli am a-comin' right in de door  
When de old Piney Wood ain't here no  
more.

"Listen, honey, if you want to farm  
Don't let de Piney Wood come to harm.  
Dey's always workin' for de farmer hard,  
Like great big soldier-men a-standin' guard,  
A-keepin' 'way drouth, de frost and de  
bugs—  
Oh, happy am de farm de Piney Wood  
hugs!

## CHORUS

"When you hear de wind, a-hu'mmin in de  
pine,  
Hit makes a tune dat sounds mighty fine.  
De big pine trees are a-makin' dat sound  
Talkin' to dere babies close to de ground—  
Little pine babies growin' down below—  
Gotta help dem babies if dey's go'n to  
grow!

## CHORUS

"When you hear de big, old pine trees moan  
Dere's a fire in de woods dat makes dem  
groan.  
De little fire kills de little baby trees,  
De grass and birds, but no ticks nor fleas.  
De big fires kill de big trees, too—  
We gotta stop fires whatever we do!"

(This song, with the music, is published  
by the Pine Institute of America, Gull  
Point, Florida. The air is delightful and  
smacks of the old negro spirituelles—Ed.)

## Fox Farming Is Growing Industry

According to the Biological Survey of  
the United States Department of Agri-  
culture there are now about 2,500 people  
engaged in the business of fur farming  
in the United States and Alaska, and  
about 1,500 in Canada. The majority of  
these are raising silver or blue foxes.

About \$30,000,000 is invested in the busi-  
ness in the United States and close to  
\$11,000,000 in Canada.

This industry has also spread to Euro-  
pean countries and to Japan, where it has  
had a steady but quiet growth.

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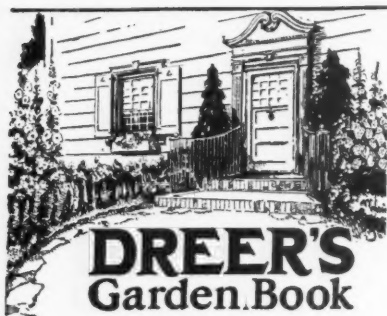
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## Increasing Popularity of National Parks

With the exception of 1918, which was during the war period, there has been a steady increase in the use of National Parks by the people since the organization of the park service ten years ago, according to the annual report of Stephen T. Mather, Director of the National Park Service. Last year's travel totalled 2,314,905. Mr. Mather points out that these figures are indisputable evidence of the increasing popularity of the National Parks and Monuments.

The report gives an interesting account of the adjustment of the boundaries of several National Parks, adding areas of great value for education and recreation. In addition to these, numerous other proposed adjustments are before Congress.

Considerable space is given in the report to the newly authorized National Parks which include the Shenandoah and Great Smokey Mountains in the Southern Appalachians, and the Mammoth Cave in Kentucky, all of which become National Parks when certain conditions are complied with in the organic acts creating them. With the enlargement of the Sequoia National Park to include certain mountainous back country with Mt. Whitney and Kern River as its principal scenic features, there ends a ten-year campaign to increase the size of this park. The attempt to have the name changed to Roosevelt-Sequoia was unsuccessful because of an amendment to the original bill in the Senate.

One of the most important activities, according to Director Mather, is the elimination from the various National Parks of private lands, which interfere badly with administration. Certain eliminations have been brought about in the Rocky Mountain and other western parks, the total amounting to 18,007 acres. Twelve

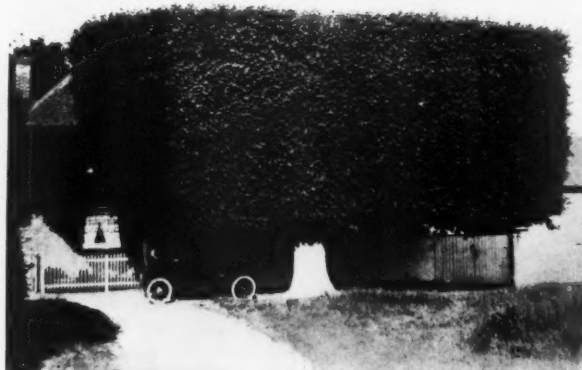
of the nineteen National Parks still have private areas ranging from a minimum of 160 acres in the General Grant to an estimated 41,000 acres in Hawaii.

Bryce Canyon National Monument still retains its former status due to the fact that the Government has not been able to secure the private holdings within the area. It will not become a National Park until title to these lands becomes vested in the United States. Efforts have been continued to acquire the privately owned land on Isle Royale in Lake Superior so that the island may be made a National Park or Monument. Director Mather expresses the hope that it may be acquired eventually and added to the system.

The Nature Guide service in the various parks, inaugurated first in Yosemite seven years ago in cooperation with the California Fish and Game Commission, has grown in popularity and added much to the educational value of the parks. Along this same line keen interest has been manifest in the expansion of National Park Museums and the valuable cooperation of the American Association of Museums is acknowledged.

A particularly severe fire season was reported for Glacier and Mt. Rainier National Parks, the total cost to the Government for controlling fires in Glacier Park reaching a figure of more than \$200,000. Fifteen thousand acres within the Sequoia National Park were burned over.

Revenue from the operation of the National Parks during the fiscal year 1926 amounted to slightly more than \$800,000, which represents an increase of 22 per cent over the previous year. The 1926 appropriation for the Park Service was \$3,258,409.



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FOREST ENGINEER

TIMBER ESTIMATES AND VALUATION  
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**Bright Colors on Birds Not Due to Vanity**

Denying the plausibility of the long-accepted notion that bright feathers of male birds serve to attract their mates, Dr. Austin H. Clark, of the U. S. National Museum has announced that the structure of birds' eyes and direct observation of their relation to their environment indicates that both the bright colors of the male and the modest hues of the female hide the wearers from their sharp-eyed enemies.

The idea, according to Science Service, that our most conspicuous birds are hidden by their brilliant coats appears paradoxical, but Dr. Clark points out that the conspicuousness depends on who does the looking. The secret lies in the construction of the bird's eye. It differs chiefly from our own and other mammals' eyes, he says, in being built about a lens of shorter focus. The image projected by the lens of a bird's eye therefore lies all in one plane or nearly so, resulting in the equal definition of all the objects in the field of vision. This is necessary for an insectivorous bird catching its prey upon the wing or for a predaceous bird. Distance means little to them, detection of their victims everything.

To a predaceous or an insectivorous bird, therefore, a landscape consists of a clear-cut patchwork of myriads of fragments of all sorts of colors and of sizes. Each stick and stone and leaf stands out sharply, no matter how distant. Against such a background, Dr. Clark explains, those objects must be least conspicuous which are most boldly colored in sharpest contrasts, dark and light, regardless of what the colors are.

**Conservation Achievements in New York**

That the greatest benefits achieved for conservation in New York State have been secured through the united effort of the organized sportsmen of the state and the establishment of the Conservation Fund were the points stressed by Conservation Commissioner Alexander Macdonald at the annual convention of the State Fish, Game and Forest League held at Utica.

This Conservation Fund is created from one-half of the receipts from the combination hunting, trapping and fishing licenses. The Legislature this year appropriated \$130,000 from this fund for the improvement of hunting and fishing, which resulted in the establishment of a 2,500-acre game refuge in the Forest Preserve in Essex County, near the Roosevelt Forest. In a few years this will furnish 2,000 more acres of dense cover for game.

Land for demonstration forests and game refuges outside of the Forest Preserve counties was also acquired with \$30,000 from this fund, and a biological survey of the entire Genesee River system was undertaken. When the latter was completed in the fall the state had a "full length" study of all streams in the watershed from the Pennsylvania state line to Lake Ontario.

**How Far Can a Deer Jump?**

Archibald Rutledge in *St. Nicholas* reports an interesting conversation with a famous old woodsman of the Carolina swamps on the wild deer's jumping powers. The old gentleman cited this case: "I once measured the jump of a deer which sprang from its bed—that is, the first jump it made from a position flat on the ground. I had approached this deer on foot, across the dry bed of a pond, lined with soft moss, and was within about eight feet of the creature when it sprang up and away. It had been lying at the base of a huge pine in a tiny clump of huckleberry bushes. There was a space of black damp sand surrounding the pine, so that I was able to measure the jump with certainty. It was 14 feet 1 inch. But remember that this jump was made from a lying-down position, while running the average jump of the white-tail is from 15 to 20 feet, but by small effort a mature deer can increase this distance amazingly."

**Pruning Fungus Found**

Dr. W. H. Long, Forest Pathologist, claims to have found a pruning fungus (*cenangium abietis*) which is doing effective work on the western yellow pine. This fungus attacks the lower branches of the trees and gradually works upward year after year for a distance of 20 to 30 feet. It is said that it rarely goes higher than this because of lack of adequate moisture. This fungus directs its attack chiefly toward branches weakened by drought, shade, and other hindering influences. The presence of this fungus can be detected by small black pustules on the branches, which are its fruiting bodies. They appear on branches that have been dead for several months. When ripe they discharge spores which move on and infect other branches. Field studies show that branches attacked by this fungus have an unhealthy appearance; Their leaves are pale, yellowish in color, and the twigs are in a dying and dead condition.

**Many Visitors to National Forests**

The twenty-two National Forests in Oregon and Washington were used for recreation purposes by 3,634,685 people during 1926, according to estimates made by field officers of the U. S. Forest Service.

Undoubtedly because of the large number of fires in the northern part of Washington during the summer which necessitated closing large forest areas to the public as a fire prevention measure, six of the state's eight National Forests showed a decline in the number of visitors for 1926. The Snoqualmie and Rainier National Forests were used more extensively by the public than ever before.

The Mt. Hood National Forest in Oregon had over 500,000 more visitors in 1926 than in 1925. These were mostly transient motorists.



# THE TREE THAT LOOKS DOWN UPON MOUNTAIN PEAKS

By NELLIE B. PARKER

A beautiful fir tree, nine feet in diameter, growing beside the road that leads to the "Last Chance" mine, in the Cornucopia district of eastern Oregon, is one of the old landmarks of this mountainous country of rugged grandeur.



The Lofty Fir

It stands in "splendid isolation" at an altitude of 7,000 feet, on the summit of one of the ranges of the Eagle Mountains, and as it is approached on the uphill pull it appears to stand on the very brink of the often-mentioned "jumping-off place," for it grows almost at the edge of a 2,000-foot precipice of solid granite.

No near-by tree has attained anything like its imposing growth and beauty, and it stands in majestic grandeur, monarch of all it surveys, a splendid sentinel guarding a splendid country.

## Early Lumbering

Supervisor Andrews says that Sante Fe Canyon, just east of Santa Fe, probably contains the oldest cutting of western yellow-pine stands in existence, and that soon after the Spanish occupation in 1600, round timbers of various sizes were cut for construction purposes, and cutting increased from then on to the American occupation of the territory. Sawmills were put in at a very early date, possibly 1850 or thereabouts, and cutting continued until a few years ago. Now there is an excellent new forest in this canyon. Mr. Andrews points this out as an unparalleled opportunity for gathering growth data on cutover lands.

## North Carolina Hopes to Create Forestry Committee

An effort to have a special forestry committee created in the General Assembly at the coming session of the North Carolina legislature is being led by Senator E. S. Askew of Merry Oaks. Forestry interests in the state see in this an opportunity to have much needed forestry legislation considered.

Senator Askew, who is greatly interested in forestry matters and who is thoroughly conversant with them, believes that the growing importance of forestry work should result in the creation of a permanent committee to consider its problems. This committee could meet the situations as they arise by submitting bills to the Assembly.

The aroused state interest makes it generally felt that forestry topics will receive as much consideration as the program of the Legislature will allow.

## Wood Alcohol From Forest Slash in Pennsylvania

Slash is serving a three-fold purpose in two wood-distillation plants located at Hallton and Gilson in the Keystone State by the Clawson Chemical Company. The area is being cut over by the Central Pennsylvania Lumber Company and is a tract of mixed virgin timber containing 13,000 acres of hemlock, birch, beech, maple and wild cherry. The average height of the trees is about 75 feet.

After removing the saw logs, the hardwood slash is cut up and it has been found that one cord yields the following products:

First—Ten gallons of Methanol or wood alcohol. Used as a solvent for shellac, varnish, etc.

Second—Two hundred pounds of grey acetate of lime. From this is made acetone used in the manufacture of smokeless powder, and acetic acid and other chemicals.

Third—Forty-five bushels of charcoal. Used in the smelting of iron and for domestic fuel.

Netting the lumberman a profit, removing the danger of fire and the retarding of future reforestation if left on the ground, and providing a source of acetate of lime and methanol for peace time and especially for war time, this wise utilization of slash would seem to be a many-sided benefit to all concerned. Although German manufacturers can produce and transport methanol or wood alcohol to New York for 18 cents a gallon and the duty of 12 cents brings the price to 30 cents a gallon. It would seem from past experience to behoove us to protect and promote this potential industry by an increased tariff on methanol.



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Write the Service Department of American Forests and Forest Life, for names of manufacturers of supplies for fox kennels and for general information about the fox industry.

## Timber Cut Increasing in National Forests

One billion one hundred and ninety-two million board feet of timber, in the form of lumber and all other timber products, an increase of 170,000,000 board feet over any previous year, were cut within the National Forests during the past year. National Forest logging operations, however, supply the logs for less than two per cent of the sawed lumber production in the United States.

While the cut of timber on Government holdings is increasing annually, Chief Forester W. B. Greeley made it plain that it is neither an indication nor a product of commercialized administrative policy.

"National Forests are by law established to improve and protect the forest, or for the purpose of securing favorable conditions of water flow, and to furnish a continuous supply of timber for the use and necessity of the citizens of the United States," he declares. "The increasing volume of timber sales on the National Forests is largely due to the fact that local exhaustion of private timber has compelled existing establishments and industries in many instances to turn to the National Forests for continued supplies."

The five states showing the greatest amount of timber sold in the National Forests for 1925 rank as follows:

Arizona.....	443,230,000	board feet
Oregon.....	388,582,000	" "
Washington.....	237,938,000	" "
California.....	231,148,000	" "
Idaho.....	199,678,000	" "

### America and Mongolia Linked by Fossil Trees

Millions of years ago, back in the days when the dinosaurs wallowed in the swamps and laid their eggs on the shore sands and mud, America and Asia joined lands, and a great un-

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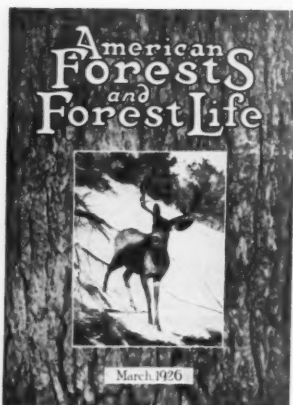
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February, 1927



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broken forest marched from Manchuria to Maine. This is indicated, according to Dr. Ralph W. Chaney of the Carnegie Institution of Washington, in the *Science News Letter*, not only by the close resemblances of the trees and other plants of eastern Asia and eastern America today, but by the resemblance of the plant fossils found in Asia to those of the same geological periods found in many parts of America.

Dr. Chaney was sent by the Carnegie Institution to accompany the Third Asiatic Expedition of the American Museum of Natural History, and his especial field of investigation was the fossil plant remains found in the same sands with the dinosaur eggs and with the flint implements of the early human inhabitants.

The trees growing in Mongolia during the Cretaceous period, when the dinosaurs were laying their eggs in the sand at Shabarakkh Usu, have a general resemblance to those whose fossils form the Petrified Forest of Arizona. They belonged largely to the group known as the Araucarians, now represented by the Norfolk Island Pine and other related trees found mainly in the Southern Hemisphere.

Only about four or five million years ago, the forest which covered parts of Manchuria closely resembled the fossil forests of California and Oregon, ac-

cording to the records of the rocks in both places. Both of these fossil floras have much in common with the present-day forest of the Pacific Coast redwood belt. They were dominated by a species of sequoia closely similar to if not identical with the modern coast redwood, but also contained secondary elements such as alder, tan-oak, maple and bay.

Dr. Chaney concludes from the evidence now in hand that during all of this immensely long period Asia and North America as well have been slowly becoming drier. The redwood tree serves as an indicator plant. It requires an annual rainfall of at least forty inches, and freedom from any long season of permanent frost. Its former presence in Manchuria, which now has a rainfall of only about twenty-five inches, and its present confinement to a comparatively narrow strip of mountain country on the American Pacific slope, are arguments in support of his thesis, Dr. Chaney states. Similarly during the same period Mongolia, to the north of Manchuria and farther inland, supported a tree population indicating a semi-arid condition; mostly conifers and poplars, with belts of rushes about the occasional pools. But Mongolia is now one of the world's greatest deserts; again an indication of progressive drying up of the continent.

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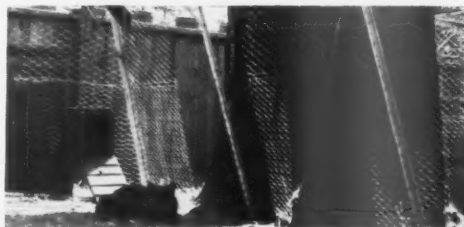
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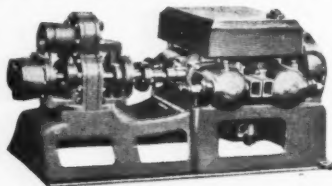
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## Book News and Reviews



A YEAR IN THE WONDERLAND OF TREES, by Hallam Hawksworth (Francis B. Atkinson). Published by Charles Scribner's Sons, New York.

Not a text book to crowd the already crowded school curricula, but a book on forestry so planned as to fit in with and supplement the studies of Civics, Agriculture and Botany, and even Arithmetic, History and Geography in the elementary schools. The author had a real purpose in writing this book on trees. It was to instill in the minds of the school children of the country a general appreciation

and understanding of the beauty and usefulness of tree life and its vital relation to the national welfare. The result is one of the most delightful and instructive forestry books yet written for children.

The chapters of the book are named for the months of the year, beginning with the first month of the school session, September. Each chapter treats of the subject most applicable to the month for which it is named. For instance, September discusses leaves, their coloring, the benefits the soil derives from decayed leaves, the various kinds of leaves and how to know them. This latter is excellently illustrated by groups of drawings of leaves similar to one another. It makes leaf identification simpler and more accurate. The other chapters cover the subjects of seeds (October), identification of trees in winter (November), Christmas trees (December), the farm wood-lot (January—inventory month), the lives of trees and the lives of men (February—the month of famous birthdays), the winds and the woods (March), the effect of rain on trees and soil (April), tree flowers and pollination (May), the woods, trees and weather, and enemies of trees (June), fire menace (July), and the United States Forest Service and the American Forestry Association, as Soldiers of the Common Good (August).

Scientific facts, national problems, and every-day matters are all presented and discussed in an intimate, interesting, delightful way, with illustrations throughout the book.

G. I. N.

CHEMISTRY OF CELLULOSE AND WOOD, by A. W. Schorger, Ph.D. Published by McGraw-Hill Book Company, Inc., New York. Price \$6.00.

This is one of two excellent books which appeared last year and which for the first time bring together, insofar as available, existing information relating to the chemistry of wood. The author is director of chemical research of the C. F. Burgess Laboratories, Incorporated, Madison, Wisconsin, which, during the past decade, has rendered conspicuous service in developing new methods of wood conversion. He was formerly research chemist of the forest products laboratory of the United States Department of Agriculture.

Mr. Schorger's book is a volume of over five hundred and fifty pages, and covers most completely the scientific and empirical data available on the chemistry of wood. Recognizing that many of the problems connected with the utilization of cellulose and wood cannot be solved by chemistry

## 1,670,000,000 CUBIC FEET NATIONAL FOREST TIMBER FOR SALE Embracing TWO PULPWOOD PROJECTS IN ALASKA

**LOCATION AND AMOUNT**—Each sale consists of all the merchantable timber marked or designated for cutting to an approximate total amount of 835,000,000 cubic feet of western hemlock, Sitka spruce, western red cedar, Alaska cedar and other species of timber, approximately 75 per cent hemlock and 20 per cent spruce, within the Tongass National Forest, Alaska. The lands to comprise the sale area or areas will be selected by the timber awardee of each sale subject to the approval of the District Forester, after the bids have been opened and the timber awarded and before the contract is executed and cutting is begun.

The lands to comprise one sale will be selected from within the exterior boundaries of Pulpitment Allotment "A" located in the general vicinity of the town of Juneau in the northern portion of southeastern Alaska. There is no western red cedar in this allotment.

The lands to comprise the other sale will be selected from within the exterior boundaries of Pulpitment Allotments "E" and "F" located in the general vicinity of the town of Ketchikan in the southern portion of Alaska.

**SALE CONDITIONS**—The purchaser of each sale project must agree to establish a paper mill of not less than 200 tons daily capacity in the general region of the sale area before April 1, 1932. The time allowed for the cutting and removal of the timber from either sale extends to April 1, 1932. Timber is to be paid for in installments of \$10,000 to \$20,000 each as cutting proceeds. The unit of measurement for pulpwood is 100 cubic feet of solid wood.

**STUMPAGE PRICES**—The bid rates will apply to timber cut prior to April 1, 1942. The lowest rates that will be considered are: For material to be used for pulp or its products, \$0.60 per 100 cubic feet for Sitka spruce, western red cedar and Alaska cedar and \$0.30 per 100 cubic feet for western hemlock and other species; for material sold by the purchaser or to be manufactured for sale in other forms than pulp or its products, \$1.50 per M feet B. M. for sawlogs of spruce, western red cedar and Alaska cedar; \$1.00 per M feet B. M. for sawlogs of hemlock and other species; 1½ cents per linear foot for piling and poles over 95 feet long; and 1 cent per linear foot for piling and poles 95 feet or less in length. Rates to be adjusted by the Forester on April 1, 1942, and at five-year intervals thereafter, under the conditions and limitations stated in the sample contract.

**RELATION TO WATER POWERS**—It is expected that bidders for either sale project will previously have submitted applications to the Federal Power Commission for permit covering water power development for manufacturing pulp and paper from the pulpwood hereby offered for sale. Each sale project is considered tributary to the water power sites in the same locality and the power permit will be granted to the timber awardee provided he meets the requirements of the Federal Power Commission.

**CONSIDERATIONS AFFECTING TIMBER AWARD**—In awarding each sale consideration will be given to the rates bid, financial ability to develop the paper manufacturing plant required, and any other factors which may assist in determining the bidder best qualified to make a success of the enterprise and whose project would be to the best public interest. The right to reject any and all bids is reserved.

**DEPOSIT**—With bid on each sale project, \$25,000, to be credited to stumpage payments, refunded or 20 per cent retained as liquidated damages, according to conditions of sale.

**SHOWING OF FINANCIAL ABILITY**—Each bid must be accompanied by a statement of the assets of the bidder available for this project, of the plan of financial organization proposed, and of any definite assurances of financial participation in the enterprise received from parties known to be able to make them good. Such a showing must include a sufficient assets in hand to enable the bidder to meet the requirements of the water power permit applied for and to make the necessary investigation of the timber during the period of the conditional award. It must also indicate that the men identified with the organization and management of the enterprise have good business standing for responsibility, experience and capacity in the direction of business affairs.

**FINAL DATE FOR BIDS**—Sealed bids will be received by the Forester, Forest Service, Washington, D. C., for the sale in Pulpitment Allotment "A" up to 2 P. M., April 25, 1927, and for the sale in Pulpitment Allotments "E" and "F" up to 2 P. M., April 15, 1927. An extension of time of not to exceed three months for receiving bids for either sale will be granted at the request of responsible parties having legitimate interest to afford more time for field examinations. Before bids are submitted, full information concerning the character of the timber, conditions of sale, deposits and the submission of bids should be obtained from the District Forester, Juneau, Alaska, or the Forester, Washington, D. C.

**PROCEDURE FOLLOWING AWARD**—An award, good for not to exceed three years, will be made conditional upon (1) the receipt by the awardee of a water power permit from the Federal Power Commission covering an appurtenant power site, to be developed for a pulp and paper manufacturing plant of at least 200 tons daily capacity; (2) compliance with the terms of that permit and meeting the requirements of the Federal Power Commission for a water power license; (3) the selection, subject to the approval of the District Forester, of the specific sale area or areas; and (4) the submission of a final showing of financial ability to carry out the project. The contract for the timber will be executed and approved when and if these conditions are met.



alone, the author has included certain chapters from the field of biological chemistry and colloid science.

The complete manner in which the author has treated his subject will be suggested by the sixteen chapters comprising the volume. Chapter 1 deals with the structure, formation and physical properties of wood; Chapter 2, the composition of wood; Chapter 3, lignin; Chapter 4, color reactions of wood; Chapter 5, hemicelluloses; and wood cellulose; Chapter 6, the constitution of cellulose; Chapter 7, gelatinized cellulose; Chapter 8, oxycellulose; Chapter 9, the action of acids on cellulose; Chapter 10, saccharification of cellulose and wood; Chapter 11, the action of various reagents on wood; Chapter 12; pulp processes and wood pulps; Chapter 13, the distillation of cellulose and wood; Chapter 14, the fermentation of cellulose and wood by bacteria and filamentous fungi; Chapter 15, digestion of cellulose and wood by animals; and Chapter 16, analytical methods.

The volume is a conspicuous contribution to an important field of chemistry and forestry, in which information and data have heretofore been widely scattered, incomplete and unassembled. As an authentic reference book, the Chemistry of Cellulose and Wood will be immediately recognized.

O. M. B.

SCOTT BURTON'S CLAIM, by Edward G. Cheyney. Published by D. Appleton and Company, New York. Price, \$1.75.

This is a thrilling addition to the Scott Burton series of books by Mr. Cheyney. Burton, a member of the United States Forest Service, and in this book chief forest ranger on a western reserve, is a straight thinking, square dealing individual, who settles disputes with his fists rather than with a gun. The story concerns the illegal "business dealings" of a former enemy of Burton's, and the latter's experiences in his attempt to bring the man to justice. There are exciting episodes, colorfully related, and action is plentiful all through the book. Jed, Burton's famous horse, plays a large part in the story, and the affection between the man and horse strikes a warm chord in the reader's sympathies.

RAIN MAKING, by W. J. Humphreys. Published by the Williams & Wilkins Company, Baltimore, Maryland. Price \$2.50.

This book by Mr. Humphreys contains just a hundred and fifty pages of humorously instructive information on that favorite topic of discussion—the weather. There is data enough in these pages to fill hundreds of lulls in daily conversation.

The author not only bursts many of the fantastic bubbles with regard to methods of weather control and certain weather signs that the gullible public fol-

lows, but gives the reader the benefit of his delvings into the customs of many countries which show how these bubbles first were blown. He shows in detail and by mathematical examples how impossible are the various schemes for making rain, for stopping rain, clearing fog, and bidding a hailstorm cease. Old maxims that people have gone by for years are intelligently proven to be as unreliable as the weather they claim to forecast. There is no attempt by the author to present a technical book on meteorology, but he has written an entertainingly educational one on a subject of wide interest.

G. I. N.

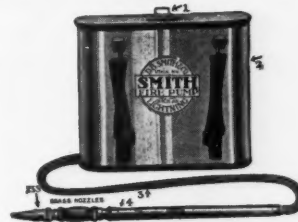
#### Bibliography of Tropical Woods Issued

The Tropical Plant Research Foundation of Washington, D. C., has just issued a bibliography of the tropical woods of the world. It is prepared as the first step toward a study of those tropical woods which may be found useful for American wood-working requirements in place of native species whose quantity or quality is deteriorating.

One hundred copies have been issued without charge in order to obtain practical cooperation on the part of the recipients in the form of corrections and additions which may result in a more complete and more satisfactory edition later in the year. This second edition will be distributed at a charge of \$1.50, and a supplement to the

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The Indian can not be excelled for fighting forest fire, brush fires, grass fires, in fact for fighting fires anywhere.

The Knapsack tank, holding about 5 gallons, is conveniently carried on the back, similar to a pack basket. It has a detachable strainer, preventing any sediments or rubbish entering when dipped into stream or lake for filling. The pump is entirely of heavy brass and has no leather packings or parts to play out or wear out, and is always in working order ready for any fire emergency. One brass cylinder works back and forth inside the other, and slow easy pumping throws a powerful 50 foot stream to any point desired.

The Indian is easily carried over logs and hilly places, and quickly extinguishes fires in trees, crotches, stumps, etc., and is highly recommended. Used on private estates, private and public parks, private and public lumber preserves, state and federal preserves. No forest either small or large should be without this fire pump.

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## Galvanized Steel Towers FOR THE Forest Service

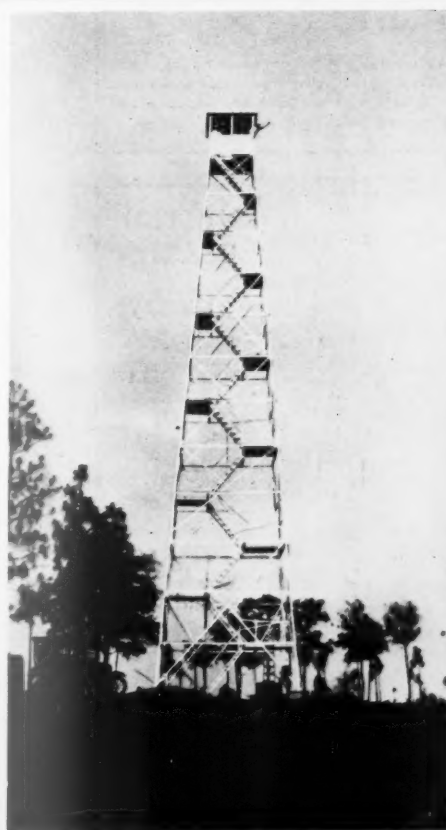
Our long experience in designing and building a great variety of steel towers has enabled us to produce this superior line of towers for Observation and Fire Protection purposes.

The house at the top of the tower is 7-ft. square. It provides comfortable quarters for the observer.

The illustration shows an 80-ft. tower of the LS-40 type. It was erected at Kirbyville, Texas, for the State Forestry Department. This tower has a regular stairway, with a railing on both sides, from the ground to the cabin. It is safe and easy for anyone to climb. The prices are moderate.

### AERMOTOR CO.

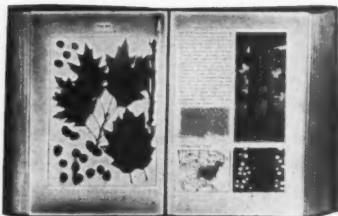
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### To Lovers of Books and Woods— The New York Times says

of HOUGH'S "HANDBOOK OF TREES"  
—"*Its illustrations carry the scent and touch of the original.*"

\$8 and \$10, according to binding.

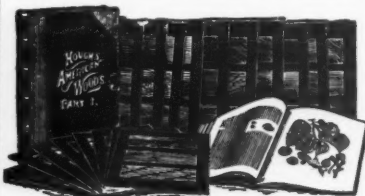


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### The late Luther Burbank says

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Illustrated by actual specimens, showing the end, "quarter" and "flat grains" of each wood. 25 species to the book. \$7.50 and \$10 per volume, according to binding.



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annual list will be issued at a nominal charge.

The bibliography which covers over 120 pages and contains more than 1,300 references is based on one prepared by Professor Samuel Record of the Yale Forest School. It is the work of Major George P. Ahern, formerly forester of the Philippines, now a director of the Tropical Plant Research Foundation and Miss Helen K. Newton, also of the Foundation.

### Southern Lumber Journal Publishes Forestry Number

The Christmas number of the *Southern Lumber Journal*, which is devoted to articles on forestry topics and reforestation needs, is worthy of note.

Among its many interesting articles are the following:

"Florida's Forestry Needs," and "Growing Timber is State Problem," by J. Ben Wand, the editor and publisher.

"The Forest Situation in Florida," and "A Forest Service for Florida," by Harry Lee Baker, the latter with a foreword by William B. Greeley, Chief, United States Forest Service.

"Fifty Years of Forestry," by Charles Lathrop Pack.

"The Georgia Forestry Law," by C. B. Harman.

"America's Reforestation Program," by Shirley W. Allen, Forester of the American Forestry Association.

"Reforestation in Southern States," reviewed by Alexander Gifford.

"Conservation of Forests," by Senator Duncan U. Fletcher of Florida, and "Forestry in Florida," by Wilson Compton.

### Pennsylvania Loses Secretary Stuart

Announcement was made, just as this issue of *AMERICAN FORESTS AND FOREST LIFE* goes to press, of the replacement of Major R. Y. Stuart as Secretary of the Pennsylvania Department of Forests and Waters, by Charles E. Durworth, Publisher of the *Bellefonte* (Pa.) *Republican*.

Governor Fisher's new appointee was chairman of the Water Supply Commission during the Sproul administration.

Major Stuart has been active in Pennsylvania forestry for a number of years and has a remarkable record of accomplishment.

### Professor Emanuel Fritz on Leave

Professor Emanuel Fritz of the forestry school at the University of California starts on a year of sabbatical leave on January first. He will spend the entire year within the borders of the United States studying various problems of the lumber industry. He will at the same time represent the California White and Sugar Pine Manufacturers Association in the

various lumber consuming centers which he expects to visit. Professor Fritz has been teaching technology and lumbering at the University of California since 1919.

### Threshing Tree Seeds

Although the professional forester has to assist nature in replanting her forests only where repeated fires have killed off both seed trees and seed stored in the soil, his methods of planting produce far more trees per thousand seeds than do the planting methods of nature. The threshing machine shown in the picture is being used



to remove the wings from western yellow pine seeds in order to reduce the bulk of the seeds and to make it easier to plant them in the nursery beds. The cones from which the seeds were beaten were taken from the food caches of squirrels. More commonly they are gathered from the forest floor by Indians, collected from the trees felled during logging or pulled from the standing trees.

Nature, in order to get a full "catch" of western yellow pine seedlings, must in an average case sow 200,000 seeds to the acre. One hundred thousand of these may germinate but when the seedlings have reached a height of one foot the vicissitudes of forest citizenship have usually reduced their ranks to a bare thousand. Of the thousand trees it is unlikely that more than 30 will reach maturity so that nature plants more than 6,500 seeds for every western yellow pine she rears, not counting those that fall before the removal of the mature trees enables them to develop.

The forester planting 200,000 western yellow pine seeds can germinate 70 per cent or more than 140,000. These he uses to plant 140 acres and as the stands obtained are as thick as nature's his return may run as high as one tree matured for 33 seeds planted.—*Photograph by U. S. Forest Service.*

## Yale School of Forestry

Established in 1900

A graduate department of Yale University, offering a two years technical course in forestry leading to the degree of Master of Forestry.

Special opportunities are provided for advanced work and research in the laboratories and the school forests.

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### The Dean of the School of Forestry

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## Oregon School of Forestry

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Offers four and five-year courses in professional forestry, logging engineering, and lumber manufacture.

Field work in the magnificent Oregon forests, easily accessible from the school. The largest logging operations and lumber manufacturing plants near at hand.

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G. W. PEAVY, Dean

Oregon State Agricultural College

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## Choosing a School

The schools whose advertisements appear in AMERICAN FORESTS AND FOREST LIFE are the leading forestry schools in their respective localities. They offer a well balanced curriculum and the inspiration of leaders in the profession of forestry.

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Colorado School of Forestry  
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Undergraduate and graduate courses in Technical Forestry. Forestry teaching in spring and fall at Manitou Forest (a 7,000-acre Forest belonging to the School), and the winter term at Colorado Springs.

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## University of Maine Orono, Maine

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## The New York State College of Forestry Syracuse University Syracuse, N. Y.

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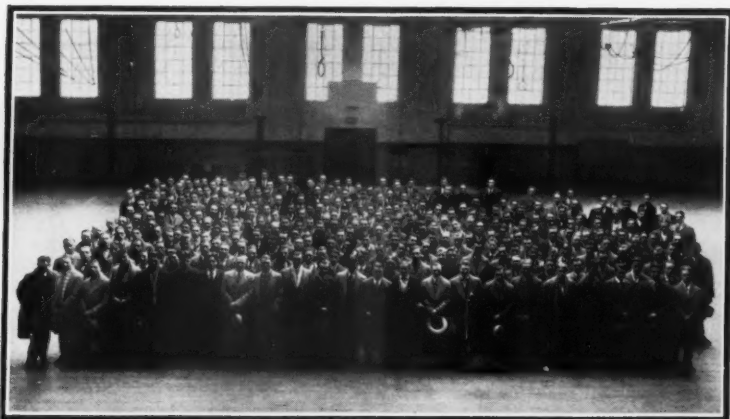
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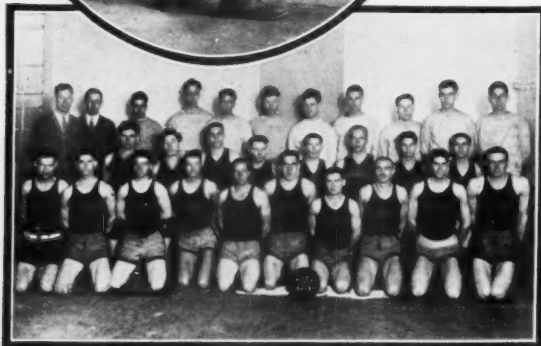


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